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FOREIGN DOCUMENTS DIVISION

TRANSLATION

Number 964 18 July 1966

SELECTED TRANSLATIONS FROM "VOYENNAYA MYSL'"
ISSUE No 10, October 1963

OFFICE OF CENTRAL REFERENCE
CENTRAL INTELLIGENCE AGENCY
2430 E Street, N. W.
Washington, D. C.

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Voyennaya Mysl' (Military Thought) is a monthly organ of the USSR Ministry of Defense, printed by the Ministry's Military Publishing House, Moscow. The articles translated below are from Issue No 10, October 1963 which was signed for the press 4 September 1963.

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CERTAIN PROBLEMS IN THE DEVELOPMENT OF MILITARY AIRCRAFT

CPYRGHT

by Lt Gen Engr-Tech Serv V. Pyshnov

In the eighty years of its existence, aviation has taken great strides from the aircraft of A. F. Mozhayskiy to the modern jet aircraft which fly at speeds on the order of 3000 km/hr, at altitudes of 25-30 km and with ranges of 10,000-15,000 km.

Although we do not have detailed information on the first aircraft in the world, created by Mozhayskiy, and on the results of his theoretical research, we can say that the first aircraft designer took the correct approach. He took the most suitable arrangement for an aircraft -- a combination of fixed wing and propeller. Such an arrangement turned out to be simplest from a design point of view and best from an aerodynamic point of view. Moreover it was unusually difficult to design an aircraft using the principle of a steam vehicle. This task was not successfully solved even after Mozhayskiy, until the appearance of the internal combustion engine, which exceeded the steam engine in power by 3-4 times at an equal weight.

The tempestuous development of aviation which began in 1910 was sharply intensified in the period between the first and second world wars, and especially during the Second World War.

After this war the conditions of development of aviation changed. On the one hand, with the appearance of jet engines, and especially air-breathing jet engines, great opportunities opened before it for increasing the speed and altitude of flight. On the other hand, a rival to the airplane appeared -- the ballistic missile, also created on the principle of jet engines. At first it outstripped the airplane in altitude and speed, and later also in range. The missile not only took over fulfillment of some of the combat missions previously assigned to the bomber and fighter-interceptor, but was in addition confirmed as the chief means of intercontinental armed conflict.

Nevertheless aviation maintained many of the its former functions and also acquired new ones. Piloted aviation now is an irreplaceable means for conduct of combat actions in ground force operations, is one of the major forces of armed combat at sea, and represents universal transportation, inasmuch as it exceeds ground and water transport in speed of cargo delivery and even, to a certain extent, in economy. The use of jet and gas-turbine engines, automation, radioelectronic instruments, main rotors and new aerodynamic assemblies (control by the air current boundary layer, deflecting tips of the leading edge, change in the sweep angle and in wing span, etc.) opens broad prospects for the further development of aviation.

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An enormous number of original designs has been developed during the existence of military aviation. Some of them were placed in the arsenal and were serially produced. There were especially many types of fighters, which were replaced every 3-4 years. In all countries with a developed aircraft industry there were 2-3 types in the arsenal simultaneously. Reconnaissance aircraft and light bombers were replaced somewhat less frequently -- every 4-5 years, and there were 2-3 types of them in the arsenal simultaneously. Heavy aircraft were replaced even less frequently (approximately every 6-7 years). Transport and training aircraft types were kept for 10-15 years. The Soviet aircraft PO-2, for example, was in serial production for 20 years. We note that the overall number of aircraft types developed in capitalist countries is not indicative in a technical sense, since frequently the creation of a new type was caused by competition. Many aircraft were very similar to each other.

In spite of the abundance of aircraft types, the process of their technical development cannot be considered equal. By examining certain of their indicators such as speed and altitude, we can note the progressive nature of development. In every decade from 1910 through 1960 speed increased by 90-100%, or in other words doubled. During this same time progress in altitude was determined by the attainment of flight capability under conditions of a 30-40% decrease in air density.

Thus in 1920-1922 in the arsenals of all governments in the world having aviation there were fighters with top speed of 180-200 km/hr, in 1930-1932 our own I-3 and I-5 fighters flew at speeds of 280-300 km/hr, in 1940-1942 the fighters of Yakovlev, Lavochkin and Mikoyan had speeds of 600-640 km/hr, in 1950-1952 the MIG-15 fighter had already attained a speed of around 1100 km/hr, and by 1960-1962 the speed of Soviet jet fighters had exceeded the speed of sound.

The expression of development of speed is indicated on the chart (the speed scale is given in a logarithmic scale). The development of speed of aircraft flight is depicted by a composite curve made up of individual curves which reflect the development of speed for a number of basic aerodynamic and design configurations of aircraft. There are five characteristic segments of the composite curve.

Segment I corresponds to the initial aircraft configuration, very primitive in aerodynamics and design, which also includes the Mozhayskiy model. Its development faded out by 1912-1914.

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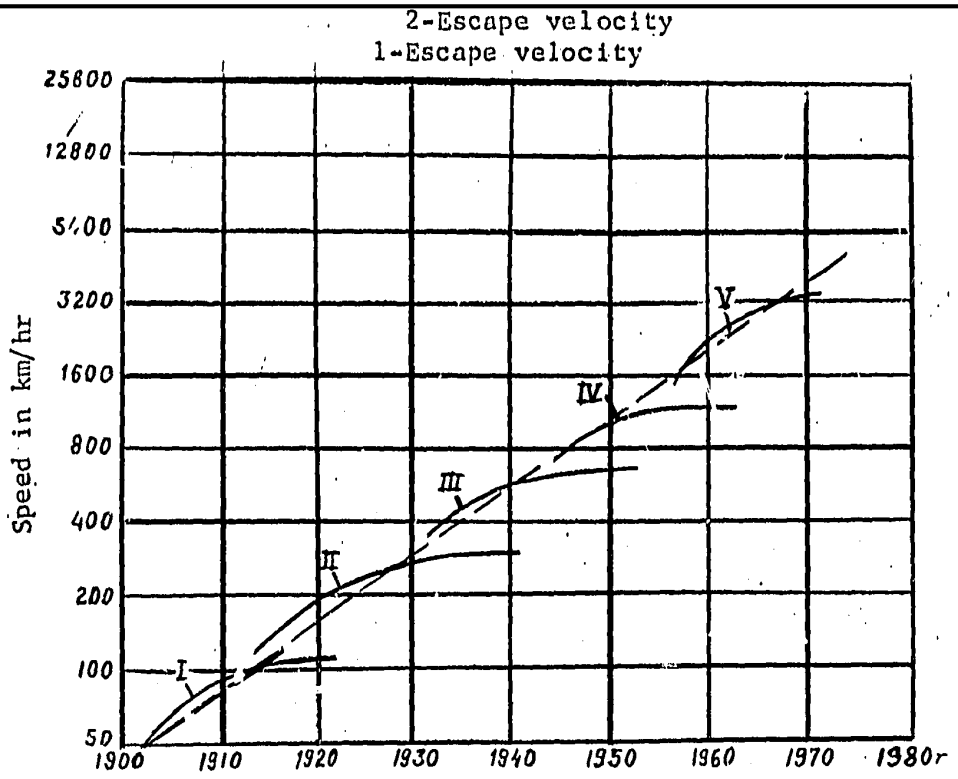

Fig. Graph of development of aircraft speed for the basic design configurations.

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Segment II corresponds to an aircraft configuration which was of improved design, but had rather crude aerodynamics. An increase in speed of such aircraft was attained basically as a result of an increase in engine power and moderate aerodynamic improvements. Such development in aircraft speed occupied a significant historical period and was determined by the formulation of the scientific bases of aircraft construction. This period includes aircraft constructed along the lines of the "classic" biplane and monoplanes with very crude lines of metallic construction with an embossed covering. The most characteristic of the biplanes was our R-5 scout aircraft (light bomber) designed by N. N. Polikarpov, and of the monoplanes -- the TB-1 and TB-3 medium and heavy bombers designed by A. N. Tupolev. These aircraft were known throughout the world in their time.

Segment III corresponds to an aircraft configuration which began to be formed at the beginning of the thirties and which included radical improvements in aerodynamics, design and engine assembly on the principle of piston engines. By this time the aspect of the airplane as a combat vehicle sharply changed. While before this time great attention had been given to creating a circular zone of defense by placing a number of fire points at various spots on the aircraft and turning it into a sort of "hedgehog", in the transition to a high-speed configuration aircraft the number of fire points on it was reduced, they were "melted" more deeply into the design and covered by fairings. The transition to highly aerodynamic aircraft configurations was most rapidly accomplished in the Soviet Union, and by 1936 Soviet I-16 fighters and SB high-speed bombers were the fastest in the world. The development of this configuration was completed at the end of the Second World War.

The curve of segment IV corresponds to aircraft with jet engines. These aircraft have good aerodynamics, but suitable only under conditions of subsonic flight speeds. In the period 1942-1944 individual test models of aircraft with jet engines were prepared, and by 1947 fighter aviation and some of the bombers had switched to turbocompressor jet engines (MIG-9, and by 1950 the MIG-15 and IL-28).

Segment V takes in supersonic aircraft with compressor jet engines. The transition to supersonic speeds was made with great difficulty. The reason is that under supersonic conditions of flight the flow around bodies and the work of the wing sharply changes and the usual subsonic wing forms are completely inadequate. While previously an increase in speed was noted by an instrument reading or by special measurements on a uniform basis, the transition to supersonic speed is characterized by a powerful salute by a shock wave, which then follows the aircraft continually throughout the flight.

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The transition to supersonic flight was done relatively recently, and now there is talk of building an aircraft with a speed of sound. In absolute speed of flight, such an aircraft is still a far cry from the sputnik in orbit (See Chart), but considering the rate of development of aviation this gap will quickly close.

Let us dwell on the outlines of development of the aforementioned basic aerodynamic and design types of aircraft. Each new type began to develop very quickly in realizing its capabilities. Later the rate of development slowed until the appearance of a new aircraft configuration, which immediately offered improvement to the speed characteristics and, of chief importance, again accelerated the general rate of development. There were such stages in aircraft construction when, it seemed, there were no means for substantial improvement of the flight characteristics (approximately in 1930-1932). Individual aerodynamic improvements did not bring a substantial increase in speed, and the increase in engine power led only to a loading of the configuration. The entire margin of power was essentially expended in overcoming air resistance, which greatly increased due to the presence of the cumbersome engine and the radiator of the cooling system. For example, the replacement of a 600 hp engine on the R-5 aircraft with one of 850 hp gave a relatively small improvement in speed.

Even such a measure as retracting the landing gear appeared to be of little use. Only after a systematic program of aerodynamic improvements (retraction of landing gear, reduction in wing area by constricting it while maintaining the span, use of closed cockpits, improvement in the aerodynamics of radiators or cowlings for air-cooled engines) was it possible to raise the aerodynamic quality of aircraft by 1.5-2 times.

By this time major improvements had been made in the engine and propeller: the altitude capability (power at high altitudes) of engines sharply increased, and fixed pitch propellers began to be replaced by propellers with pitch changeable in flight. As a result the useful power and efficiency factor increased.

During the Second World War the situation also occurred where the conceivable aerodynamic improvements had seemingly already reached their limit and polishing the useful surfaces of the aircraft was not practical under conditions of rapid production and rigorous military operation. By this time even an increase in engine power had ceased to have any effect. It was again necessary to seek new ways for improving aircraft flight characteristics.

A sharp improvement in the attributes of flying apparatus occurred in the second half of the Forties (when jet engines began

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to be strongly developed). It also has a place in the present time. The field of supersonic and hypersonic speeds comparable to escape velocity opened before aviation.

The use of the compressor jet engine, usually called the turbojet (TRD), allowed aircraft to quickly attain the speed of sound and then to exceed it by almost three times. The thrust of this engine in the range of speeds from 0 to 1000 km/hr is almost constant, then it quickly begins to increase and at a speed equal to 2500-3000 km/hr it becomes 2.5-3 times greater than at lesser speeds.

The further development of technical thinking led to the creation of turboprop and turbo-fan engines. The turboprop is a turbojet engine which in addition turns an ordinary propeller. Therefore under conditions of low and medium speeds it is more economic, and with an even expenditure of fuel -- more powerful. Turbo-fan engines are widely used on transport aircraft and helicopters.

The use of a propeller working in the open turned out to be unsuitable at transonic and supersonic speeds. Then engines were developed which had a propeller of relatively small diameter with many blades enclosed together with the engine in a common housing. Such an engine came to be called a by-pass or turbo-fan engine. At low and medium flight speeds it occupies by its characteristics an intermediate position between the turbojet and turboprop engines, and at high speeds it competes with the turbojet engines.

The creation of intercontinental ballistic missiles and space ships became possible with the appearance of very light-weight (per kg of developed thrust) rocket engines for liquid or solid fuels with high specific pulse ([Note]: Specific pulse is the product of thrust and its time of action exerted per kg of fuel components expended by the engine.). We know well that air-space flights will be considerably facilitated with the appearance of engines operating on new principles and primarily using nuclear energy. This forms the future of aviation.

Let us examine the specifics of the development of military flying apparatus. The opinion exists that military aircraft differ from civil aircraft only in the presence of armament and special equipment for conducting combat operations. In reality there are no principally sharp differences between the design of civil and military aircraft. There are examples where passenger aircraft have been constructed on the basis of bomber aircraft. The US has the B-52 bomber and the Boeing-707 passenger aircraft, which are quite similar to each other. The top speed and cruising speed of these

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aircraft are similar (800-900 km/hr at altitudes of 10-12 km). The advantage of the bomber over its "civil" modification lies only in range, attained thanks to a more considerable fuel reserve.

However the transformation of a bomber into a passenger aircraft is not the best solution, and the latter retains a "legacy" of its military predecessor. The military aircraft is created to solve combat missions. Its specific character appears in defined relationships between load capacity, speed, range, altitude, maneuverability and rate of climb. Conditions of operation are also specific for the military aircraft. Flight conditions have a number of limitations assuring stability, controllability and especially durability of the flying apparatus. Not only high, but also very low speeds are limited. Boundaries are also established for intensity of maneuver. All this tells on the design of the military aircraft.

What is the process by which military aircraft are born? Some people believe this process to be the following: military specialists in accordance with the demands of aviation draw up tactical and technical requirements for an aircraft, and the designer develops the aircraft according to them. In reality the history of creation of new designs is more complex. The fact is that a new military aircraft is not set within the framework of well established technical capabilities, but always represents a major step forward and is developed using means which have been relatively recently tested or have not been checked at all. Naturally the customers cannot give "figures at will". They independently study beforehand the present capabilities of aircraft construction and discuss with scientists, designers and fliers the advisability of creating the new vehicle. In addition they study what is being done in this field by the probable enemy and what he will have to counter the given aircraft. These are all difficult and complicated questions requiring the use of modern methods of research and a high level of training on the part of aviation specialists.

We have spoken of the importance of high flight speeds; does this mean that the military aircraft should have a maximum high speed? Of course not. It should have high speed, but not at the expense of other important attributes. In order for the aircraft to have the highest speed with a given engine, it must be made as small in size as possible, which means as light as possible. Such an aircraft turns out to be not a military one, but a racing plane, and it will be completely incapable of combat. If we increase wing size while maintaining engine power, this will make the aircraft capable of greater load capacity, will increase the range, improve maneuverability, possibly even raise the ceiling, but will undoubtedly lower speed and rate of climb. As the aircraft is made larger

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each of the characteristics at first changes slowly, and then more sharply, and in the end it is possible to display the best dimensions of a military aircraft for a certain purpose.

From the history of the Second World War it is possible to cite examples in construction of aircraft of approximately equal power, but some of them were "underproportioned", i.e. having high speed with low load capacity, others were "overproportioned", i.e. with long range and high load capacity but too slow and with limited application. As examples we can cite three Soviet two-motored bombers -- PE-2, TU-2 and YeR-2 -- with engines of approximately equal power. The PE-2 is the smallest and fastest bomber. Its speed reached 600 km/hr and its in-flight weight was 8.5 tons. The YeR-2 was largest in wings size with in-flight weight of 15 tons and speed around 450 km/hr. The TU-2 bomber was between these two aircraft, but was somewhat better in aerodynamics. With an in-flight weight of 12 tons, it could fly at a speed of 560 km/hr.

The correct selection of proportion is the most important condition for successful development of a new design. We will show how, in general, the rational proportionality of aircraft of various purposes is determined. We will cite a comparison between the fighter and the bomber. An attempt is made to make the bomber such that it can lift as many bombs as possible into the air (by weight and number), has a long range, and at the same time has flight characteristics which make its intercept by fighters and rockets difficult. In addition the safety margin is lowered for economy of design weight and consequently an increase in fuel reserve. The fighter however must definitely have advantages in speed and margin of lift for maneuver and high rate of climb in order to intercept and destroy the bomber in time. The fighter receives the necessary qualities at the expense of load capacity. This is understood to be the relationship between its average weight and possible lift as determined by the power characteristics of the engine and the dimensions of the wings. The use of the margin of lift while maneuvering requires an increase in the margin of safety of the design, and thus a substantial increase in fuel reserve. In summary, in flight at the same altitude as a bomber the fighter has a certain speed advantage, a very great advantage in margin of lift for maneuver, but sharply lowered capabilities in duration and range of flight.

The creation of supersonic bombers with large radius of action is a considerably more difficult task than that of creating fighters with short flight time. The US has such a bomber (B-58 Hustler), but its supersonic range is very limited and at present is only 2000 km.

The problem of supersonic flight for fighter aircraft has been quite fully solved. Questions which several years ago were

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solved with great difficulty in the early years of aviation. Flight at speeds of 2000-2500 and even 3000 km/hr is not uncommon. Aerodynamic forms, control means and engines have been developed sufficiently enough to ensure such flight. However supersonic flight led to a substantial change in a number of properties of flying apparatus which have a direct relationship to combat capabilities. For example, there has been a change in the concepts of the so-called flight celing and the maneuver characteristics of the aircraft.

The concept of "ceiling" in prior thought has begun to lose its meaning. An apparatus flying at high speeds has two forms of mechanical energy -- the energy of altitude and kinetic energy. Beginning with a certain speed the proportion of kinetic energy begins to be dominant. There exists a balance between these two different forms of energy. Thus the kinetic energy of an aircraft moving with a certain speed can be used to gain additional altitude. In other words, the presence of speed is equivalent to additional altitude (in meters). It is equal to the square of speed divided by a factor of 255. For example, a speed of 360 km/hr is equivalent to an altitude of 510 m, and a speed of 1800 km/hr to an altitude of 12,750 m. Adding the actual altitude and the speed equivalent of energy, we obtain the power altitude. Aircraft of the Second World War period, flying at speeds of 500 km/hr at an altitude of 6 km had a level of energy of around 7 km. Altitude energy made up 86% of this. At a speed of 2200 km/hr and an altitude of 14 km the aircraft already has an energy level of 33 km, of which 58% makes up the kinetic energy and only 42% the altitude energy.

This actually means that if an aircraft flies at an altitude of 14 km with an energy level of, for example, 33 km, then it can use a considerable portion of its energy to gain an altitude equal to 25-28 km. It is known that the X-15 experimental aircraft (US) can be pushed to speeds of 7000 km/hr. Having attained this speed in ascent, it has already climbed to around 100 km and can climb still higher. Thus in this sense the former concept of boundary altitudes of flight has changed.

Let us dwell on the peculiarities of maneuver in high-speed flight. Maneuver capabilities for military aircraft then had great significance. While aircraft were relatively slow, the term maneuverability was mainly applied to aerial combat by fighters. Two enemies who met in the air began a so-called "carousel", i.e. went into steep turns, trying to get behind one another. In order to avoid this, each tried to make a turn of the least radius and purposely took on as much overload as was possible. But the drag of the aircraft increased along with the overload. After a certain time the energetic differences of the aircraft began to have an

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[illegible] the energetic balance in both planes became passive, i.e. both lost more energy than the engine group provided. This overexpenditure was compensated by the use of energy of descent. If the descent of one of the aircraft turned out to be more significant, then upon approaching the ground it was forced to be the first to go into horizontal flight. Then the enemy overtook him.

During the Second World War there appeared aircraft with maneuver capabilities which had essentially changed in comparison with previous aircraft. This was revealed by Soviet pilots. With an increased speed the proportion of kinetic energy increased in the energetic balance and the maneuver capabilities began to be determined not only by the power/weight ratio of the aircraft (the presence of an engine), but also by the margin of speed at the moment of engagement. However it was best to use the advantage in kinetic energy in a vertical ascending maneuver, which became typical.

The role of superiority in initial speed during an engagement can be felt even more in an air battle with jets. The increase in flight speeds to considerable supersonic speeds caused great qualitative changes in these maneuver attributes. The portion of kinetic energy characterized by kinetic altitude became dominant, reaching a magnitude of 15-25 km However the layer of dense atmosphere was too thin for the ascending maneuver. In an upward maneuver with radius of 10-15 km (which corresponds to large and small overload) the plane leaves the dense air medium and takes a ballistic trajectory until it returns again into the dense medium. The maneuver involving loss of altitude also hides some unpleasant things. A steep dive is limited by the allowable dynamic head, and in certain cases by insufficient altitude for transfer of the aircraft into level flight.

The maneuver of high-speed aircraft is also limited in the horizontal plane. With an increase in the turning radius proportional to the square of the speed, the path covered in the turn increases in a corresponding manner. If we consider the increased expenditure of energy caused by overloading, then one circle leads to a loss in range on a straight line by 150-250 km and even greater. Thus the scale of maneuvers has greatly increased, their time of fulfillment has also significantly increased, the vertical maneuver is limited and the general maneuver capability includes only parts of circles in the horizontal plane.

Does the above signify that the role of maneuver has decreased? Not at all. The greater maneuver is limited, the greater effect it can have with skilled use.

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The direction of further development of flying apparatus in all countries is determined, as before, by the tasks placed upon aviation. From a point of view of specific peculiarities, they can be divided into three groups: first -- reconnaissance and strikes against ground and sea objectives; second -- transport (cargoes, troops) and landings; and third -- counter-action to flying apparatus (piloted and unmanned) in the air. The most varied flying craft are needed to fulfill these tasks, since their field of action can include front, continental and intercontinental or transoceanic regions, and the flight itself can take place at high, medium and low altitudes. The aircraft designer must consider these circumstances in the most thorough manner. Each of the possible combinations of range, altitude and speed is a basis for the creation of a completely specific type of flying apparatus.

If we were to classify aircraft by such criteria as purpose, range and altitude, then it is evident that we must create a large number of aircraft of specialized types. Naturally the production of an enormous number of different type aircraft is impossible. Therefore the designers take the path of giving certain aircraft universal characteristics. This is especially widely practiced in those cases where aircraft which sharply differ in purpose must have approximately the same range, altitude and speed. Universality of design is accomplished either by modification or by replacing containers with equipment and armament.

Present design concept makes wide use of this capability. As a result, the aviation arsenals of many countries contain aircraft of various modifications which are designed to handle missions of reconnaissance, strikes or combating flying apparatus in the air. Thus the USAF has B-47 bombers and RB-47 reconnaissance aircraft, F-101 fighters and RF-101 reconnaissance aircraft. In the first instance the prototype of the reconnaissance aircraft was the bomber, and in the second -- the fighter.

Great doubt has been raised in the capability for creating a universal aircraft which could fly both at high altitudes with supersonic speed and at low altitudes with transonic speed. Tests have shown that the contradictions between these two very different conditions of flight are not so great and there is a possibility for acceptable technical solutions to the problem of creating such aircraft.

The fighter-bomber serves as an example of a universal aircraft. Its creation became possible thanks to the use of jet engines and highly automated radioelectronic equipment.

The classification of flying apparatus according to aero-

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dynamic and engine criteria and according to weight category is given in Table 1, made up on the basis of an analysis of the technical flying characteristics of foreign flying apparatus. Different types of craft are designated by numbers.

Table 1

Aerodynamic/engine criteria	Weight category: Light	Medium	Heavy	Very Heavy
Supersonic jet.	1	2	3	4
Subsonic jet.	5	6	7	8
Subsonic propeller. . .	9	10	11	12
Helicopter, VTOL. . . .	13	14	15	16

By using arbitrary numbering it is shown which types of flying craft can exist. Thus: 1 -- a fighter; 2 -- fighter-bomber or tactical rocket carrier (reconnaissance aircraft); 3, 4 -- long-range strategic rocket carrier (reconnaissance aircraft); 5 -- trainer; 6, 7, 8 -- light, medium, heavy (long range) transport aircraft or auxiliary aircraft; 9 -- trainer or communications aircraft; 10, 11, 12 -- light, medium, heavy transport aircraft; 13 -- training helicopter or communications helicopter; 14, 15, 16 -- light, medium, heavy helicopters.

It is evident that there can be greater numbers of types of transport flying craft (nine of sixteen). This does not mean, of course, that they should all be developed. Technical progress in engine construction will undoubtedly lead to a reduction in their number, inasmuch as the qualitative differences in the flying craft may be immaterial. For example, with a further improvement of jet engines and further use of turbo-fan engines it is possible to take from the six types of transport aircraft (6, 7, 8, 10, 11 and 12) the best ones (6, 7, and 8), and with a solution of the technical problem of shortening the takeoff and landing distance competition between types 6, 7, 10, 11 and 14, 15 will be eliminated.

A portion of the aircraft types listed in Table 1 already exists. In speaking of present-day aircraft, then the US has, for example, fighters of universal application of type 2 (F-105 and F-4 Phantom), bombers of type 3 (B-58), transport aircraft of types 7, 11 and 12 (Boeing-707, C-130 and C-133 respectively) and medium helicopters of type 14. The B-70 is being constructed (type 4) and there are obsolete fighters and bombers of types 5, 7 and 8 (F-86 fighter, U-2 reconnaissance aircraft, B-47 and B-52 bombers). There are flying craft which belong to types 9, 10, and 13. There is a total of over 12 types of flying craft in the US arsenal.

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military flying craft, based on the foreign aircraft construction practice. We should primarily expect further development in speed. An increase in speed from Mach 3 to 5 will bring no special changes in aerodynamics. A new quality appears in aircraft at speeds exceeding that of sound by more than five times. Such speeds are called hypersonic. The qualitative changes are explained in the following manner. Air molecules flowing past the aircraft have inherent movement velocities of around 500 m/sec. Subsonic speeds of movement of the flying craft are substantially less than the velocity of molecules, supersonic speeds are on the order of molecular velocities, and at hypersonic speeds the velocity of the molecules is low in comparison to the speed of the flying craft. It is known that the movement velocity of molecules characterizes the temperature of air. If the aircraft speed is considerably greater than the movement velocity of air molecules, then with the interaction of the latter with the walls of the flying craft the velocity of the molecules increases and the air flowing around the flying craft heats up. This heating then is the main feature in flight conditions at speeds over 5000-6000 km/hr. The possibility of overheating of the aircraft structure places limitations on speed, inasmuch as the conditions of engine operation deteriorate and also rigidity and durability of construction is lost to a certain degree.

Heating of the surrounding air has an especially unpleasant influence on the operation of the jet engine. The principle of operation of the engine consists of the use of heat obtained in the burning of fuel. If the air enters the engine when it is already very hot, any possible additional heating in the combustion chamber will be relatively small and the developed thrust of the engine will drop sharply. There are still no bases to speak of the unsuitability of jet engines; however their design must change substantially.

To provide for efficiency in the design of an aircraft it is required above all that we use more heat-resistant materials -- primarily titanium and special steels. Then there is thought about the further increase in heat-resistance of construction materials or about the use of means for their cooling. Cooling, by the way, takes place as a result of heat radiation from the walls of a body. Temperature of the walls of the flying craft is determined by the balance in the supply of heat from the air stream, its distribution within the structure, and the surface radiation. In a flight at high altitudes the density of air is low and the influx of heat is small, so the effect of its radiation from the walls can be substantial. As a result the aircraft structure will not be strongly heated from the air stream flowing around it. This points up the importance of a wise combination of an increase in speed and altitude.

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[redacted] very high speeds can be primarily attained as a result of the use of liquid or solid fuel rocket engines. However their economy at low and medium speeds is greatly lower than that of jet engines. Engines using oxygen of the air have very great advantages in flights at speeds of 3000-6000 km/hr. They are economical. Therefore tests of this type of engine are now being conducted along the lines of preserving their efficiency even under conditions where the air entering the engine is very hot.

The following thoughts are given in regard to even more remote possibilities in the development of high-speed flying apparatus (hypersonic and near-escape speeds). With the use of jet engines to attain hypersonic speeds it is necessary that the discharge velocity of gases from the engine be greater than the speed of the aircraft. The discharge velocity can be less than the flight speed in rocket engines. Herein lies the utility of their use. But there are peculiarities in the use of rocket engines. Research in the field of hypersonic flight with rocket engines has shown that the flight of a hypersonic craft must be made not with constant speed with operating engine, but first the craft must be pushed to the highest speed possible and then the main part of the flight made without the engine, i.e. by gliding. The kinetic energy acquired during the thrust permits flying over great distances. Thus, after acceleration of the aircraft at an altitude of 50 km up to speeds of 4 km/sec the energy altitude is 850 km and the gliding range will be around 3500 km. As the acceleration speed approaches the 1st escape velocity the range very sharply increases.

Another very important problem in the development of flying apparatus is considered to be the decrease in required size of airfields right down to a complete elimination of the need for a takeoff and landing run.

In the whole preceding history of aviation development the takeoff and landing speeds and the necessary airfield sizes steadily increased. An increase in aircraft weight and of tire pressure led to the necessity of having airfields of larger size with a rugged artificial covering. We cannot count on the use of such airfields in wartime. Presenting a very important target, they and the aviation based thereon can be easily destroyed by the enemy, and the aircraft remaining will not be capable of carrying on combat operations from them. This means that the existing sizes of airfields are not acceptable and must be sharply reduced. Therefore designers are now working on the creation of aircraft with shortened takeoff and landing requirements. This is a very complicated problem, but it will definitely be solved. There are reasons for decreasing the takeoff run. Engine thrust is increasing and weight is decreasing. Test models of such flying craft have been created abroad.

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things are worse with decreasing the landing run. Until the aircraft has touched the ground it is impossible to sharply brake it, even using reverse thrust. With a high thrust there arises the possibility of using it directly as a lifting force, directing a stream of gases from the engines downwards. It is possible to construct aircraft, and they already have been constructed, which obtain so great a thrust from jet or propeller engines that the aircraft rises straight up into the air. This permits it to move horizontally, to maneuver and then again to "hover" before landing "on a dime." Acceptable takeoff and landing attributes must be combined with high speeds and long range, which again is based on the creation of the necessary engine. The engines must have a high thrust and in addition must be light in order not only to support a large useful load, but also to free weight which is taken up by an additional fuel reserve to be expended in motionless "hovering" in the air. There is no doubt that this will be practically solved in the near future.

Opportunities for mastery of the circumterrestrial air space are not limited. There is also no limit to the mastery of universal space. Prospects are more deceiving for the creation of a flying craft which can not only fly in a dense medium (accomplish independent takeoff and landing), but also can accomplish space flight in distant orbits around Earth and even make a run to other planets. In addition, for military aviation there have opened the prospects for a more complete use of the possibilities of flight in the air at various speeds with high economy, great regularity and exceptional security. This will broaden the scope of operations of aviation and increase the circle of tasks which can be solved by military aircraft. As concerns air transport, in the future it will have the opportunity of becoming the basic means not only for passenger, but also cargo transport both at enormous and at short distances.

The present period in the development of flying apparatus is characterized not only by an increase in speeds and altitudes, but also by the use of various principles of flight and design solutions. Some of the new ways will undoubtedly be very fruitful. Along these lines of development the leading place belongs to engines which are very light and highly economical.

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SURMOUNTING OBSTACLES AND ZONES OF RADIOACTIVE CONTAMINATION IN THE OFFENSE

RADIOACTIVE CONTAMINATION ON THE OFFENSE

CPYRGHT

by Col K. Lapshin

The surmounting in a brief period of various obstacles, zones of destruction and radioactive contamination of the terrain facilitates a general increase in rates of advance.

Present offensive operations conducted in broad theaters of military operations have considerable spatial scope. In the course of these operations various types of obstacles and zones of contamination must be crossed not only by chasti and soyedineniya of the ground forces, but also by rocket troops, PVO troops, ground chasti of the VVS, and also numerous rear chasti and installations.

In a large-scale offensive operation encompassing considerable territory troops will encounter more obstacles and destruction than in past wars, including zones of radioactive contamination. This is explained by the presupposed mass use of nuclear weapons by the combatants and the increased technical capabilities for the construction of engineer obstacles. With high rates of forward movement and operations along a broad front and at great depths, the troops must obviously overcome more frequently than before obstacles, zones of destruction and inundation, regions gripped by fires, and, especially, zones of radioactive contamination created by the defenders.

Foreign military literature looks upon the use of engineer, chemical and mixed obstacles and zones of radioactive contamination as a factor which gives their troops the capability to conduct defensive operations and to seriously hinder an advance. US military leaders, for example, give special significance to the creation of so-called nuclear barriers using surface and sub-surface bursts of nuclear weapons. These barriers include vast zones of radioactive contamination; the destruction of lines of communication, bridges, defiles, and also of passes and roads in mountainous regions; large obstacles in wooded and swamp-and-woods areas; the destruction of cities, populated points and other objectives; centers of fires on natural boundaries and axes. For this purpose the US Army is planning to use, in addition to ordinary nuclear weapons, atomic demolitions with a yield of one KT, and there are being developed atomic mines with yields of 0.1-0.2 KT and less ([Note]: Army, July 1961, pages 29-36.). It is believed that with the use of nuclear barriers encompassing a large territory it is possible to sharply reduce the maneuver capability of the attacking forces, to disrupt the shift of operational and sometimes of strategic reserves from the depths, and to disrupt the delivery of material means into the area of combat operations.

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Heightened attention is given in armies of imperialist governments to the development of principles and methods of using various obstacles. In the opinion of the American army commanders, engineer obstacles of all types, chemical mines and simple demolitions can be independently set up by podrazdeleniya and chasti of all arms.

In recent years the technical capabilities for creating obstacles in short periods have significantly increased. Mechanized means are now being used for this purpose, such as mine layers and helicopters. With their use it is possible to mine roads and column approach routes, to destroy bridges and to set up other barriers and demolitions. Helicopters are most effective for mining under conditions of radioactive contamination of the ground ([Note]: Ordnance, May-June 1961, pages 770-774.).

Great attention is devoted abroad to the creation of new mines, primarily in plastic containers, with horizontally directed action, quickly placed, easily transported, difficult to detect and with a large radius of effective casualties. Attention is also given to improvement of ordinary types of mines.

The basic engineer barriers in a number of armies are antitank, antipersonnel and mixed mine fields, which depending on their tactical use can be used for the purpose of destruction and disorganization of troops in assembly areas, during their movement along roads, and also in the system of defense for covering gaps between positions, on the flanks and in areas subjected to nuclear strikes. According to American views it is recommended to construct engineer obstacles (some of them in combination with napal mines and the contamination of the terrain with persistent toxic chemical agents) ahead of time and during combat operations along the main enemy routes of advance.

Zones of radioactive contamination could be encountered in practically any area, both in friendly territory during movement of troops to assault positions and in the depth of the enemy defense.

The methods for attacking troops to use in overcoming the aforementioned obstacles and zones depend largely on their size, nature, place and time of construction or formation. In order not to slow the rate of advance, it is important even during the planning for the offensive operation to foresee the actions of the enemy in constructing various types of obstacles and the possible radioactive contamination of the terrain.

For such prediction it is necessary to know in detail the views of the probable enemy, the principles of construction and nature of obstacles employed by him, to thoroughly consider the

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[illegible] and capabilities of nuclear weapons, and also to have in the course of the operation sufficiently complete data from combined arms, engineer, chemical and radiation reconnaissance about obstacles which have been placed or are being prepared by the defender.

This will allow commanders and their staffs to correctly choose the methods for the troops to use in overcoming nuclear barriers, strips of destruction, obstacles and zones of contamination in a brief period without a substantial change in the decision made for the operation and without lowering the rates of advance; to distribute on a firm basis the engineer and chemical forces and means among the elements of operational and combat troop formations; and to work out the problems of interaction.

For support of a rapid negotiation of given zones the operations plan usually provides for possible changes in the directions of advance and for the separation from the operational formation of advance chasti equipped with the appropriate means. Here is possible both a replacement of a portion of the first echelon forces and also a partial realignment of the operational formation of the advancing forces.

It will obviously be wise to change the direction of advance of soyedineniya in those cases where the zone of advance indicated by the operations plan contains the most difficult destructions and centers of fire or zones with extremely high levels of radiation, where considerable time would be required to negotiate them. New directions should also be chosen in a detour of major points of enemy resistance with consideration made for the existing road network.

Sometimes it is well to take advance chasti (podrazdeleniya) from troop operational formations and shift them by air across large zones of obstacles and destruction for the purpose of destroying or seizing important objectives. There could also be use for special advance detachments equipped with protective means and with combat and transport equipment of good cross-country ability allowing the negotiation of zones in short periods. In case of possible destruction by the defender of hydrotechnical structures, leading to the creation of a broad zone of inundation, it is wise to provide beforehand for river-crossing means for these detachments.

The surmounting of a nuclear barrier is unavoidably accompanied by the irradiation of personnel due to high levels of radiation. Therefore it is important that the first echelon of the advancing forces have chasti and soyedineniya which are best protected from radioactive irradiation, such as tank troops or troops which have up to that time received only a minimum dose of radiation.

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In the course of surmounting a nuclear barrier a situation could occur where on some axes the soyedineniya can move at rapid rates, while on others the movement is delayed or even halted. Under such conditions there is an obvious requirement to change the operational troop formation. In addition it should be kept in mind that after emplacing a nuclear barrier the main grouping of defenders will hardly remain behind this barrier. Substantial shifts will most likely take place here. The latter will also force the attacker to realign his grouping and will cause a change in the axis of attack or in the means used to surmount the nuclear barrier.

In the engineer technical plan the means of crossing obstacles, destructions and zones of radioactive contamination will be selected by commanders on the basis of an analysis of reconnaissance data and on an estimate of the capabilities of the forces.

Data on the size, system and nature of obstacles and destructions can be obtained ahead of time with great reliability by means of aerial photography of the terrain in the area of advance. It is believed that the degree of radioactive contamination and the general boundaries of the contaminated region can be most quickly established by an aerial radiation survey. The use of aerial means to detect obstacles and zones of radioactive contamination does not reduce the importance of conducting reconnaissance by ground means. The latter is effective only when conducted at high rates of speed.

In this regard there come to the foreground questions of equipping the advancing forces, and primarily the engineer and chemical chasti and podrazdeleniya assigned to make passages in the obstacles, with modern means of reconnaissance which would allow long-range detection of mine and chemical obstacles. It is known that many armies have developed highway induction mine detectors mounted in front of vehicles to seek out ordinary metallic mines. However the appearance of nonmetallic mines or other means of creating mine obstacles has sparked the development of universal reconnaissance means, possibly included in a new engineer technical plan with the use of other scientific principles different from those now existing.

There has been a considerably greater introduction in modern armies of apparatus for the detection of terrain areas contaminated by toxic chemical and radioactive substances. Thus the US has developed a continually operating infrared automatic gas warning device called ["Loner"-word partially illegible], which detects toxic substances at distances up to 400 meters even with a small concentration in the air. Various dosimetric apparatus have been developed to detect zones of radioactive contamination.

Returning to an examination of the methods of surmounting

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[illegible] obstacles -- antitank ditches, escarpments, forest obstructions and others -- are overcome relatively easily with the use of dozer equipment mounted on tanks and prime movers, by bridging equipment, and also by demolitions charges.

Upon encountering deeply echeloned mine obstacles in the course of an operation, the troops will strive to primarily use the available gaps in the obstacles, and also the sectors destroyed as a result of nuclear bursts. The latter could be quite extensive. American antitank mines of the usual type explode from the effect of a shock wave formed from the explosion of a 20 KT nuclear weapon at a distance of 900-1000 meters from the epicenter ([Note]: Technische Mitteilungen fuer Sappeure, Pontoniere und Mineure (Technical Information for Combat Engineers, Pontoneers and Miners), May 1958)). If more stable mines are laid, the extent of the disrupted sectors will be reduced 2-3 times, but even these will be sufficient to cross the obstacle without a substantial change in the combat formation of the advancing forces. In dense mine obstacles the troops must make passages. For this purpose many armies have mine sweepers and rocket mine-clearing charges. Mine sweepers allow a very high rate of mine-clearing -- almost equivalent to the speed of movement of tanks. However they are ineffective if the obstacles include antitank mines, flame-throwing, chemical or nuclear mines. Passages are more reliably made using mine-clearing charges placed on the mine field by special rocket motors.

The equipping of advancing troops with rocket mine-clearing charges, so it is written in the foreign press, allows making passages in mine obstacles which contain any types of mines, both on the FEBA and in the depth of defense. These charges can be used by engineer podrazdeleniya moving on APCs within the combat formations of the advancing troops.

However the combat engineers are forced to dismount from the APCs in order to prepare the charges for launching, and they are then exposed to bullets, fragments and other means of destruction used by the defender. For this reason the APCs of engineer troops need special equipment which would permit placing rocket-propelled mine-clearing charges on the minefield and quickly marking the passage thus made with charges without dismounting from the vehicle.

The means examined by us cannot always be successfully used. In particular, if the enemy placed individual mines or groups of them of various types along roads at a considerable distance one from another, then the rocket-propelled mine-clearing charges would have little effect.

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In addition to mine sweepers and rocket-propelled mine-clearing charges, which are very effective under certain conditions, it is recommended to use one means which would allow making passages in all types of obstacles and to clear roads of the most varied mines.

This does not exclude the use in time of completely new technical devices and transport means to surmount obstacles. Thus, in the opinions as expressed in the foreign press, antitank and even antipersonnel mines will probably not explode upon passage of vehicles of the air-cushion type ([Note]: Journal of the Royal Aeronautical Society, May 1962, pages 290-301.).

In case the enemy explodes chemical or nuclear charges, the terrain in a certain area will become contaminated by toxic or radioactive substances, fires could break out, flooded areas could form or other destruction could appear. In addition radioactive substances could fall out onto mine fields after surface nuclear bursts. The advancing troops will have the task of surmounting composite obstacles, which could seriously hinder their advance. If under the conditions of the operational and tactical situation it is impossible to avoid such obstacles, their surmounting will be included in the logical actions of the troops, depending on the peculiarities and nature of the elements making up the composite obstacle.

When mine fields are widely used, a considerable quantity of engineer troops must be used to make passages in them. Usually the soyedineniya advancing in the first echelon are reinforced with podrazdeleniya of engineer and chemical troops having the necessary means of demining and decontaminating. It is very important to distribute these podrazdeleniya so as to ensure independence of action by soyedineniya on each axis of advance.

In conducting an advance at rapid rates it is difficult to count on the possibility of accomplishing a rapid and successful maneuver with engineer forces and means on ob"yedineniye level, especially with the wide use of nuclear weapons and the creation of vast zones of radioactive contamination. Therefore in instances where there is a limited number of podrazdeleniya of engineer troops, it is necessary to use for mine-clearing operations the personnel of the advancing forces themselves in order to speed up the rate of advance. They should thus be well trained for this. We believe it also is wise to return to the principle of training extraordinary crews in motorized rifle, tank, artillery and other chasti to accomplish mine-clearing work, as this was the case during the Great Patriotic War.

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It is very important that the advancing forces in the necessary instances can quickly and independently, without waiting for the approach of the combat engineers, surmount obstacles, eliminate destruction on roads, perform the simplest road and bridge building work, clear forest obstacles and eliminate centers of fire. This is possible if all arms receive good engineer training.

During the organization of the attack it is desirable to provide time for the chasti of all arms to practice the basic engineer procedures characteristic for the given operation to ensure a continuous advance under conditions of radioactive contamination of the terrain and the presence of engineer and chemical obstacles and various demolitions.

Zones of destruction encountered during the advance can be overcome, considering the data of the radiation situation, by the most accessible routes, with a detour of difficult obstacles and large centers of fire. The rate of advance under these conditions will depend on the nature of the enemy action and the capabilities of the troops to eliminate damage to roads, obstacles, destruction and centers of fire. It is obvious that the troops should have detachments for supporting movement which are more effective than under ordinary conditions, and that podrazdeleniya of all arms of service should be used for engineer work.

Methods for passage of areas gripped by fires depend on the nature and intensity of the fires. Small scattered centers can be extinguished by using explosives or engineer equipment at hand. It is possible that for localizing large forest fires we will have to use aerial means with methods as applied under civilian conditions.

Much attention in recent years has been given in the periodic military press to the problem of crossing zones of radioactive contamination in an offensive operation. From an engineering point of view, interest lies only in the examination of passage of zones on the move or over sectors with lowest levels of radiation. In these cases it is necessary to accomplish a number of organizational and engineer procedures so as not to lower the general rates of advance by the troops and so as not to exceed the allowable dose of radiation for personnel.

The simplest method ensuring uninterrupted movement of troops through a zone of radioactive contamination is to mark the routes with road signs. Here special attention is directed to difficult sectors, obstacles, steep rises and descents, road crossings, barrier crossings and detours. In case of night movement or movement with restricted visibility it is necessary to set up lighted precautionary road signs and indicators. It is best to enclose heavily contami-

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notebook-size of the route with markers showing the minimum speed of movement at which the personnel will be safe from radiation. This simple step must not be ignored.

It is not always possible to cross terrain with radioactive contamination along those routes or axes with a minimum, but relatively high level of radiation due to an absence of roads in passable condition or of terrain that is not sufficiently negotiable off the roads in the necessary directions. Under these conditions, in order to ensure high rates of advance and to avoid irradiation of the personnel with a dose which considerably exceeds that allowable, the podrazdeleniya of engineer troops must perform work of restoring bridges and damaged sections of road and must lay cross-country routes.

The surmounting of a zone of radioactive contamination after a drop in high radiation levels requires the halt of troops in front of the zone, which is extremely undesirable and not always possible under the specific combat situation. If troops nevertheless are forced to halt their movement to await a drop in radiation levels, then they disperse in assembly areas, camouflage and occupy cover, using primarily gulleys, ravines, fortifications seized from the enemy, basement floors of buildings, etc. In other cases the troops are required to set up in a short time even the simplest shelters and covered slit trenches, and also other types of trenches.

If much time must be spent awaiting a drop in radiation levels, then in a number of instances it is best to cross the zone of radioactive contamination along decontaminated passages on roads, cross-country routes and the strip of terrain immediately adjacent to them.

The opinion is sometimes expressed that it is not expedient to decontaminate the terrain and roads because of the labor-consuming work involved. In this regard we will attempt to examine what effect can be obtained by decontaminating passages on roads, under what conditions is the method of crossing vast zones of radioactive contamination along passages expedient for troops, and what are the present technical capabilities for making passages.

It is obvious that passages in terrain contaminated with radioactivity will be effective with the decontamination of a broad enough strip of terrain. Foreign literature ([Note]: The Effects of Nuclear Weapons, Translated from the English, Military Publishing House, 1960.) cites data showing that in a large area of even contamination up to 50% of the radiation dose (measuring 0.9 meters from the surface) is encountered at a distance of over 7.6 meters and around 25% at a distance of over 15.2 meters. Consequently, in

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decontaminating a strip 30 meters wide the radiation dose in the center of this strip will drop to one fourth of its initial value. If we take a passage which is not 30 meters, but 10-12 meters wide, then the radiation level in the center of the decontaminated strip will drop no less than twice in comparison to the initial level. In this case decontamination of the terrain will not be absolutely complete, however the radiation level could be so low that the danger of serious radioactive irradiation of the advancing troops will be eliminated.

The effectiveness of passages in terrain with radioactive contamination lies not only in a lowering of the radiation level. It is known that in determining the change in radiation level in relation to time we do not take beta radiation into account. But if radioactive substances fall on the skin or get inside the organism of man, beta radiation would present a serious danger. If however the troops cross the zone of radioactive contamination along decontaminated passages, then the danger to personnel from beta particles will be eliminated, simultaneously with the lowering of radiation levels by approximately two times.

Passages in a terrain with radioactive contamination must be made at a rate no lower than the rate of movement of troops, otherwise the troops will cross the zone at a slow speed immediately behind the podrazdeleniya making the passages, or at a high speed, but with the lapse of a certain amount of time after the beginning of decontamination work.

It is obvious that in the second instance the danger of radioactive irradiation will be less because of the short stay of troops on the contaminated terrain. The time interval from the beginning of decontamination of the passage to the moment of its crossing by troops (T) can be determined by a very simple formula:

$$T = L \left(\frac{1}{V_d} - \frac{1}{V_m}\right).$$

where L -- length of passage through the zone (or width of the zone) of radioactive contamination, in kilometers;

V_d -- speed of decontaminating the passage, in km/hr;

V_m -- rate of troop movement along the passage, in km/hr.

Let us examine the determination of this time in a specific example. Let the width of the zone of radioactive contamination (L) be equal to 50 km, assume the passages can be made at a rate (V_d) of 15 km/hr, and the possible speed of troop movement (V_m) is 20 km/hr. Then $T = 50 \left(\frac{1}{15} - \frac{1}{20}\right) = \frac{5}{6}$ hr, or 50 minutes.

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Consequently after this time the troops can begin movement. On the basis of this we can conclude that the method of crossing a zone of radioactive contamination along passages is expedient if the time before beginning troop movement along the passages is less than that for awaiting a drop in radiation to a safe level.

Let us assume, for example, that the second echelons, reserves or rear organs will move out to a zone of radioactive contamination with a high level of radiation ½ hour after nuclear bursts. Zone crossing is possible after the radiation level falls to twice that of the present. In this case the troops will be forced to wait almost six hours (the radiation decay factor after 2 hours is 0.45, after 4 hours is 0.19, and after 10 hours is 0.07). It is obvious that in such a situation it is desirable to make passages so that the troops can begin crossing the zone much earlier than would be the case for awaiting a drop in radiation level.

It follows from this that the expediency for decontaminating passages over terrain contaminated with radioactivity depends not only on the level of initial radiation and the depth of the zone of radioactive contamination, but also on the time that troops will enter the zone after the nuclear bursts. The later that the advancing troops move to a strongly contaminated area after a defender has hit it with surface nuclear bursts, the more suitable it is to cross it through passages.

Inasmuch as radioactive substances cannot be neutralized by some kind of chemical means, the decontamination of roads, cross-country routes or terrain strips is accomplished by the mechanical removal of these substances from the contaminated sectors. The nature of the roads and terrain and the capabilities of the troops to decontaminate determine the methods of crossing the passages.

The most well-known method of decontaminating dirt roads and terrain strips is by removing (cutting away) the contaminated surface layer of dirt or snow with the aid of various engineer and road vehicles, in particular the road-laying vehicle (BAT), the dozer equipment mounted on tanks (BTU) and tractors, and the tank snow plows (STU). The abovementioned machines are better than others for protecting crews from radioactive irradiation. Nevertheless, in making passages there must still be supervision over the dose of radioactivity received by the crews, so that the mechanic-drivers can be replaced in good time.

However the decontamination of terrain with these means is accompanied by great difficulties. These are caused by the relatively low efficiency of the mechanisms and the complexity of work in making comparatively wide passages, and sometimes even by the nature of the terrain. It is a very difficult task to make 10-12 meter wide

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passages in broken terrain with forest masses or with brush.

It is considerably simpler to decontaminate roads with hard surfaces, since here it is not necessary to cut away and move dirt or to cut forest or brush to widen a passage. If we examine, for example, the road network of the West European theater of military operations, we can assume that there will be a sufficient number of hard surface roads in the zone of advance of each soyedineniye, and so much the more for each ob"yedineniye. Therefore for such theaters of military operations it is expedient to plan primarily on decontaminating hard surface roads over which troops can quickly and uninterruptedly move through vast zones of radioactive contamination with a maximum of speed.

Various vehicles can be used for the decontamination of hard surface roads, including those widely used in the national economy such as street sprinklers, street sweepers and in winter rotary snow plows. But in our opinion the most promising may turn out to be dust collector vehicles. The AP-60 dust collector vehicle, designed for cleaning airfields, has been developed in the Soviet Union on the MAZ-200 chassis. In one hour the dust collector cleans 38,000 square meters of concrete surface, and is capable of picking up rubble and small objects weighing up to 150 grams.

Similar devices are also available in other countries. In particular the US several years ago developed a vehicle on the principle of a vacuum cleaner for clearing roads of radioactive dust. It is capable of clearing a strip 2.2 meters wide at a speed of 56 km/hr. It can be controlled by radio at distances up to 16 km and by wire from a remote control panel. It is planned to mount three television cameras on the vehicle to send back pictures of the surrounding area to the control panel. Another machine of interest is a dust collector vehicle controlled by a driver and designed for high-speed decontamination. It is capable of clearing a road of radioactive dust at a speed of 50 km/hr and an intake width of 3.6 meters ([Note]: Voyennyy zarubezhnik (Foreign Military Review), No 4, 1960.).

The information given indicates the technical capability for decontaminating roads and gives reason to believe that the crossing of vast zones of radioactive contamination along prepared passages (decontaminated routes) may be one of the important means of increasing the rates of advance in present-day operations.

The rates of preparing passages can also be raised by the use of presently existing engineer vehicles, if they are used to decontaminate not the entire length of road, but only the sectors with the most dangerous radiation levels. In this instance the total dose

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of radiation received by the personnel in crossing the zone will of course be somewhat higher than in the case of a continuous passage. It increases by a total of 20-25% with partial decontamination, while the amount of work in comparison with complete decontamination is reduced 1.5-2 times.

If we even accept the fact that the decontamination of hard surface roads will be accomplished with a speed somewhat less than march speed, then also in the case the troops will gain in time -- they will begin movement along the passages considerably sooner than if they awaited the natural drop in radiation level.

The crews of the engineer vehicles now in the hands of the troops and which can be designated for making passages are in need of increased radiation protection. This can be achieved by installing special cabins. American commanders are planning to install on tractors and graders protective lead or armored cabins for the crews. These would be equipped with a filter and ventilation system, a radio set and an instrument to measure radiation levels. The US is conducting experiments to develop bulldozers controlled by radio and by the use of a television set from a distance up to 24 km for laying routes and clearing passages in a contaminated area.

The capability for troops to rapidly cross a radioactive zone through passages will primarily depend on the number of passages (decontamined roads) in the zone of advance, and the latter depends on the conditions of the radioactive situation, the amount of work, the availability of forces and means, the operational formation and the precision of interaction of the arms of service.

Considering this, it is important when developing staff papers on the offensive to reflect in the coordination tables the places and time for making passages through a contaminated area and the order of troop passage along them.

The advancing troops will be able to use the methods of crossing zones of radioactive contamination examined in the article, adapting them to the specific situations.

Within the framework of the operational ob"yedineniye the crossing of a vast zone of radioactive contamination, depending on the radiation situation of the moment, will evidently most frequently be accomplished by the combined method, where some soyedineniya or chasti will be able to bypass the zone without crossing it, others will cross it on the move in a short time, still others will move along axes with minimum radiation levels without significant engineer work, and there will be others (only certain soyedineniya) which will

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await a drop in radiation levels or will make use of decontaminated passages.

This essentially facilitates the solution of organizational questions. It is possible that decontamination vehicles can be available, not in each soyedineniye but, let us say, on ob"yedineniye level, in podrazdeleniya specially detailed for decontamination. This will allow limiting such vehicles to a relatively small number.

The use of decontamination podrazdeleniya can be done on the basis of a prediction of the radiation situation according to the ob"yedineniye plan and above all in those soyedineniya which will most probably have to cross a zone of radioactive contamination along decontaminated routes.

The further study and development of the methods of crossing obstacles, destruction and vast zones of radioactive contamination will undoubtedly facilitate the attainment of high rates of advance under the complex conditions of nuclear warfare.

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by Col S. Tsyrfa

The development of problems of military art in countries of the socialist camp represents an objective need stemming from the nature of the present international situation, which is caused by the aggressive foreign policy of the US and its partners in military blocs. The imperialist camp, headed by the US, is not decreasing its efforts in the intensive preparation for unleashing an aggressive war against the Soviet Union and the other countries of socialism. Capitalist countries are continuing the mad race of nuclear missiles and conventional weapons and are encircling the countries of socialism with a ring of missile, air and other military bases.

Under these conditions a strengthening of the military power of the socialist governments is an important restraining factor in the path of the aggressive tendencies of the reactionary imperialist circles. "The socialist governments, having united their economic and military potential", said Minister of Defense of SU R. Ya. Malinovskiy, "have immeasurably strengthened the defensive power of the entire world system of socialism and have stood as an indestructible wall in the path of the imperialists who wish to unleash a new world war" ([Note]: Krasnaya Zvezda (Red Star), 23 February 1963). This is why the development of the theory of military art on the basis of new means of armed conflict and military technology must be examined as a prime task of military scientific cadres of the armed forces of the countries of the Warsaw Pact.

The problem of maneuver and maneuverability acquires great significance in connection with the equippage of the armies with nuclear missiles, atomic missile submarines and supersonic atomic-bomb-carrying jet aviation, the increased mobility of ground forces, chasti and other new means.

The book by Colonel L. Varvarzhovskiy of the brotherly Czechoslovakian People's Army, Manevrennost' (Maneuverability), is dedicated to this important and interesting subject, and it is suggested for the attention of the Soviet military reader ([Note]: L. Varvarzhovskiy, Manevrennost', Moscow, Military Publishing House, Translated from the Czech, 1963, 176 pages).

Maneuver and maneuverability are categories which are just as ancient as military art itself. The problem of maneuver has always been in the center of attention of military theoreticians, especially since the end of the 19th Century. Various aspects of maneuver have frequently been the subject of lively scientific discussions and research. The military press began to devote much

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attention to this problem after the Second World War. It is hard to find any military theoretical work by Soviet and foreign authors which is the least bit serious which does not examine to some degree many questions connected with the maneuver of fire, forces and means, and with the maneuver capabilities of troops. But in spite of this there has not been published until recently any book or special research work dedicated to the problem of maneuver.

The work being reviewed is essentially the first one on this subject. In it the basic questions of maneuver and maneuverability have been systematized and quite fully examined (in a historical sense and in accordance with the requirements of new weapons and military equipment and the methods of their use).

The work consists of five parts, titled respectively: Appearance and Role of Maneuver; General Concepts of Maneuver; Types and Forms of Maneuver; Maneuverability; Maneuver in Various Types of Troop Combat Operations.

In our opinion the historical part of the work deserves complete approval. In clear examples from the experience of past wars, especially the first and second world wars, it investigates the increase in the role of maneuver in armed conflict of the preatomic period. This part allows the reader to follow the evolution of views on this problem and to see which objective conditions on the battlefields caused a steady rise in the significance of maneuver of forces and means.

This historical approach to investigation of the problem allowed the author to graphically portray how the role of maneuver and troop operations by maneuver increased more and more in accordance with the improvement in means of armed conflict, the increased scope of combat operations in space and time, the wild development of all forms of transportation and communications, and also the changes in the quality of personnel of the armies. This appeared especially graphically as early as the initial period of the First World War, which, in distinction to the previous wars, was conducted by armies of many millions in theaters of military operations which were enormous in frontage and depth. In achieving decisive operational and strategic goals, the combatants frequently resorted to carrying out the maneuver of very large forces, chiefly by means of railroad movements. At the same time the author notes that the insufficient development of highly mobile and long range means of warfare, the lack of motorized armies, the preponderance of purely infantry and cavalry soyedineniya, and the small numbers of tanks and aircraft of the combatants led the armies finally into the blind alley of positional forms of warfare. War as a whole did not have a clearly expressed maneuver nature.

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The [illegible] during the Second World War was completely different -- the role of maneuver abruptly rose. Troop maneuver operations had a decisive significance in achievement of strategic, operational and tactical successes.

The book says that the increase in the role of maneuver was caused by the intensive development of mass, highly maneuverable tank and motorized troops with a high mobility and high fire and striking power; by the further qualitative and quantitative development of artillery; by the availability of aircraft which were numerous and were being wildly developed; by the appearance and development of airborne troops; by the technical improvement of various special arms and services; by a sharp rise in the maneuver qualities of naval forces; and also by the continual growth in striking power and controllability of forces. The basis of the technical equippage of all branches of the armed forces became the powerful engine, which provided a high combat and march mobility and maneuverability for the forces.

All this is shown in the book on the basis of the experience of combat operations, chiefly of the Soviet Armed Forces in the Great Patriotic War. In analyzing this experience, the author justifiably notes that the problem of maneuver and maneuverability during the Second World War was solved best by the theory and practice of the Soviet military art. In his opinion, only the Soviet leaders and the troops they led demonstrated in the Great Patriotic War unsurpassed examples of the execution of the concealed and surprise maneuver of major forces on an operational and strategic scale. Thanks to this the Soviet Armed Forces successfully conducted a great number of the most important operations directed at the encirclement and destruction of strong enemy groupings. "Only Soviet military art," the book says, "the ideologic and theoretical basis of which is Marxism-Leninism, could from the moment of its inception correctly evaluate and use maneuver and maneuver operations" (page 27).

Soviet military art has always devoted much attention to the problem of maneuver and maneuverability of troops. There have been frequent articles in the pages of the military press, especially in the journals Voyennaya Mysl' (Military Thought) and Voyennyy Vestnik (Military Journal), on questions of maneuver in battle and in the operation. These articles examine the significance of maneuver for achieving victory under present conditions and the influence of the main means of destruction on the types and forms of maneuver.

I would like to note the great significance of the discussion on all these questions conducted in 1953-1955 in the pages of the journal Voyennaya Mysl', and also the importance of the publication

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of the articles "Questions of Increasing the Mobility of Forces" (No 2, 1957), "Anti-atomic Maneuver in the Offense and Defense" (No 10, 1961), "Second Echelons and Reserves in Operations" (No 7, 1962), for solution of the problem of maneuver in present-day operations. It is quite gratifying that the author makes wide use in the book being reviewed of theoretical material and practical experience gained by Soviet operational art.

The continuous development of new means of armed conflict, military equipment and methods of armed conflict in recent years has required a reevaluation of the views on the role and content of maneuver and the development of new and more effective methods of preparation for and execution of various types and forms of troop maneuver. The author has thoroughly analyzed the earlier existing definition of the concept of maneuver, and has shown that the presence of nuclear weapons and long range means for their delivery to the target requires a new definition so that it reflects as completely as possible all changes which have taken place in military matters.

Quite recently in the military art maneuver (applied to the combat operations of ground forces) was understood to be "the organizational shift of troops in the course of a battle for the purpose of creating the most favorable grouping of one's forces and means and their occupation of the best position in relation to the enemy for inflicting destruction on him by powerful fires and a crushing blow". It is quite understandable that present capabilities for solving operational-tactical and strategic missions by means of nuclear strikes essentially change the content and purpose of maneuver and broaden its bounds. "...Fire will now play", writes the author, "a decisive role in the execution of any tactical, operational or strategic mission, inasmuch as the powerful fire of rocket forces can destroy not only the enemy tactical groupings on the battlefield, but also the operational and strategic groupings in theaters of military operations, and also very important objectives throughout the enemy territory" (pages 48-49). In this regard the book stresses that, in distinction from the past, when maneuver and fire were subordinated to the interests of the strike, "the purpose of maneuver under the new conditions will chiefly be the immediate advantage taken of the results of fires, and also the protection of forces from enemy fires" (page 55). The solution of missions of strategic significance by powerful fire blows essentially changes the nature of warfare, the operation and the battle, the content of military art, and in particular the content and purpose of maneuver.

After reading the book it is easy to conclude that the essence of maneuver now consists of the timely, organized and rapid application of mainly the fire of nuclear weapons, aviation and all conventional fires against enemy objectives and areas, and also the trans-

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for [illegible] fires (or various means) against selected axes of operations for the most effective use of the results of fires, chiefly nuclear.

We share the author's opinion that it is now necessary to [one word illegible] massed nuclear fires in the concentration of forces and means on the axis of the main attack. It is also true that the continuous buildup of the force of the blow should also be presently looked upon not only as the introduction into battle of the second echelons and reserves, but chiefly as an intensification of fire power -- "...not of itself will the grouping of forces created as a result of the maneuver decide the success of the combat operations and deny the enemy freedom of maneuver, but in conjuction with powerful fires, the basis of which are nuclear fires and the maneuver of fire of rocket forces" (page 41).

The types and forms of maneuver are examined in detail. The author breaks down maneuver by scales strategic, operational and tactical. He analyzes the style and interaction of these types of maneuver, speaks of surprise as the prerequisite of a successful maneuver, and reveals the essence and content of all forms of maneuver -- the envelopment, the turning movement, the shift of forces in the course of the battle, the withdrawal, the anti-atomic maneuver.

Attention is deserved by the statements in the section on the interplay of politics and strategy in the interests of ensuring the successful execution of strategic maneuver. In our opinion the author correctly stresses the thought that it is impossible to plan on the successful preparation, initiation and conduct of a war, military campaigns and strategic operations without "a broad strategic maneuver of men and means", "without the preparation, planning and conduct of maneuver of various branches of the armed forces on a large scale" (page 62).

In speaking of the feigned maneuver, the author points out the difficulty of the successful accomplishment of this specific type of maneuver. "The feigned maneuver", he writes, "must be prepared and conducted in such a manner that the enemy is convinced right up to the last moment of the genuine nature of the feigned maneuver". For its accomplishment "is necessary the very same skill and knowledge as for the conduct of a genuine maneuver" (page 68). As a matter of fact, the feigned maneuver must not only lead the enemy astray, but force him to take such countermeasures as to afford the opportunity to successfully accomplish the real maneuver. The experience of the past war and the probable nature of future operations also confirm the complexity of accomplishing a feigned operational and strategic maneuver in a nuclear war.

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The most important prerequisite for the successful accomplishment of any type of maneuver is surprise. Unfortunately the author did not cite any specific recommendations on this important question, but limited himself to only a few examples. It seems that this section could have been somehow expanded, examining not only the examples of the experience of past wars, but also the basic requirements and recommendations in achieving surprise in the preparation and execution of maneuver of various arms under conditions of nuclear missile warfare.

A great portion of the work is devoted to the classification and examination of the known forms of maneuver: envelopment, turning movement, shift of efforts and anti-atomic maneuver. Attention is drawn to the author's statement that the turning movement "is the form of maneuver which under present conditions will find broader application than in the past" (page 80). This takes into account the fact that the turning movement can be executed not only on the ground, but also by air. The author sees the objective prerequisites for this in the steady development of troop mobility and the mobility of fire power, especially in long range capability, and also of aviation and the airborne forces.

In examining the "turning movement" and the "envelopment", the author arrived, in my opinion, to the justified conclusion of the elimination of the difference between these forms of maneuver, especially on the operational scale. As a matter of fact, the enormous range of modern means of destruction allows the coordination of fire even in the case where the troops making the turning movement are in operational interworking with the troops attacking from the front.

The author includes anti-atomic maneuver in the number of specific forms of maneuver. This takes on an especially important significance with the broad use of means of mass destruction. We can agree with the author that the basic goal of this form of maneuver lies "in the protection of men and means against the effects of enemy weapons of mass destruction by confusing him as to the real disposition of our troops" (page 90).

It is known that some military specialists have expressed the opinion that anti-atomic maneuver is only a defensive measure. The work refutes such a view and stresses that the maneuver, being a combination of actions directed at avoiding great losses from nuclear weapons, is necessary both in the defense as well as in the offense.

By <u>maneuverability</u> the author means the degree of capability which the troops and military equipment have for accomplishing a rapid maneuver. He examines the various aspects of maneuverability

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at the strategy level, giving attention to such an important circumstance as when the boundary between the front and the rear will cease to exist. In this regard the author states that the requirement to provide strategic maneuverability "can no longer be limited to the armed forces, it takes on significance for a government or a coalition of governments as a whole. Therefore the modern war will not only be a war of mass armies and machines, but also a war of industry and reserves" (page 99).

The book states that to provide for strategic maneuverability it is necessary to establish on the level of all armed forces a correct relationship of the branches and arms of the forces and their equippage with modern equipment, and also to correctly and opportunely disperse all forces, means and reserves to diminish their vulnerability as much as possible so that the losses suffered will not have a negative influence on overall combat capabilities. When necessary, strategic maneuverability must at the same time provide for the rapid concentration of all necessary means on the selected axes.

The author also examines the most important measures for providing strategic maneuverability. In this regard he gives first importance to the need to establish a communications system which would provide for uninterrupted transmission of orders, reports and information not only for the military staffs, but also for the civil organs of control.

The rapidity of maneuver is now supported mainly by the precise and mobile control of forces. In order for the control system not to become a brake, it must include a strictly determined number of echelons (steps). "...It is well to renounce," says the author, "those echelons of control which cannot directly affect a change in the situation" (page 104).

No less important is the planned construction of a system of various means of transport, especially air, capable of transferring considerable forces and means with the loss of a minimum of time. He points out the necessity for also creating a dispersed storage of required reserves of materials, and also the rational organization of medical-sanitary and provision organs. He stresses the significance of mechanization and automation of production for the purpose of producing a maximum quantity of products with a minimum expenditure of labor.

The author also dwells on the questions of the organizational structure of the armed forces which must provide them with a quickness of actions. Their foundation must be the rocket forces, capable of laying a crushing fires at any ranges. But, as the author cor-

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firstly underlines, we must also preserve the other branches and arms in due proportions and in the necessary numbers, since the successful conduct of war is possible only on the basis of their close coordination. Armies must have for this the necessary quantity of modern technical means of warfare for the conduct of combat maneuver operations with the use of nuclear weapons and missiles.

The work shows certain prospects for increasing the maneuverability of the forces, and notes in a general outline the trends in the development of individual branches of the armed forces.

In examining the development of aviation, the role of which does not lessen in the future, he notes that its Achilles heel are the costly airfields which are very vulnerable to nuclear weapons. Therefore the author shares the existing views that the basic path for the development of aviation of the future is the creation of VTOL aircraft and aircraft which can take off from mobile launchers.

In speaking of the development of the ground forces, the author mainly dwells on the tank forces, main striking force, which gives modern operations an exceptionally highly mobile nature. He sees their further development in the increase in maneuverability, fire power and protection against radioactive contamination and penetrating radiation, which in its turn requires further improvement of their organizational structure and the methods of combat and operational use.

From the point of view of objective conditions, the question is quite properly placed about the proportion of rifle troops in the total numbers of the armed forces (page 125). They will become increasingly fewer in numbers. In the author's opinion, the rifle forces must have "high maneuverability, which can be attained through a total motorization and mechanization, i.e. by equipping them more and more with improved tanks, combat vehicles, APCs, self-propelled artillery pieces, vehicles with good cross-country ability and to a considerable degree with aviation" (pages 124-125).

The work expresses an interesting thought on preserving the two independent branches of service — the infantry and the tanks. Would it not be more proper, asks the author, to create in place of the motorized infantry and tanks one branch which would be more improved and which better answers the modern requirements of maneuverability? He affirms here: "Everything indicates that such a solution is not only possible, but desirable, and that this new branch could be made up of the armored troops, which combine all the positive qualities of the tank and motorized rifle troops... a decisive role in this new arm would be played by tanks and APCs, which have far from reached their limit in development" (page 125). In the

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opinion of the author of the book under review, this problem requires attentive study and research in order to come up with a conclusive decision.

The author further believes that it is necessary to adopt a course to improve the maneuverability of the rocket forces and artillery. At the same time we must continue the development of rocket-launching artillery, self-propelled and recoilless weapons, electronic computers and reconnaissance means. All this will raise the maneuver qualities of the ground forces.

The author does not ignore the questions of maneuverability of the rear and its operational efficiency. "Those armies", the book states, "will be distinguished by high maneuverability which will not have to depend on the presence of large dumps, but will have light, mobile rears capable of rapid maneuvering" (page 126).

A large part of the book is devoted to the preparation, execution and support of maneuver in the various types of troop combat operations. Here the reader will find much useful information on the nature of troop maneuver in the attack, the defense, in combat in cities, in the withdrawal and in breaking out of an encirclement. The author examines the questions of the organization of the commandant's service, on the precision of work of which depends the concealment, organization and rapidity of execution of a maneuver under any conditions of the situation.

It is pointed out that in a future nuclear missile war the former system of commandant's service will not answer the requirements placed upon it. The author sees its more improved organization as being accomplished on a territorial basis, such as the dispatcher service on a railroad. It is proposed to introduce permanent organs and a separate communications network for the commandant's service. It should also be independent of the chasti and soyedineniya which it serves. Only in this way, in the author's opinion, will the commandant's service be able to support troop maneuver in an exact accordance with the instructions of the appropriate headquarters. In their turn the headquarters will have the capability of continually and quickly receiving all necessary information on the situation on routes of movement and to operationally influence the movement of troops. In principle such a statement of the problem deserves attention, but it should be remembered that it is not possible to create such a system of commandant's service in all theaters of military operations and axes, since there will not always be sufficient forces and means for this. In addition, forces and means which have been committed in a timely manner could be outside the sphere of combat activities of the troops.

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On the whole, the book contains theoretical judgements and practical recommendations which deserve attention. The Soviet military reader will peruse it with great interest.

The questions examined in it are, as a rule, laid out in accordance with the views on the conduct of warfare, operation and battle which have built up in the military art of the socialist countries. The majority of conclusions do not cause doubt, since they are based on present-day achievements in the development of means of armed warfare and on a critical analysis of historical experience, especially the experience of combat operations of the Soviet armed forces in the Great Patriotic War.

The author has succeeded in demonstrating that the basic changes in the content of maneuver and maneuverability occurred in the last and genuinely great decade, during which the development of nuclear missile weapons led to a genuine revolution in military affairs. It is under the conditions of a principally new material-technical base of armament of the army and navy, as never before, that the significance of maneuver grew. This especially pertains to maneuver of fire of strategic means.

The entire work as a whole confirms that modern means of warfare have essentially increased the role of maneuver and have broadened its bounds. In a future world war, if it is not averted, there is every basis to believe that maneuver will be carried out not only within the limits of one theater of military operations, but also from one continent onto another by means of fire of strategic rockets, aviation, soyedineniya of the submarine and surface fleets and other forces and means of the combatants.

In summing up his research efforts Col Varvarzhovskiy justifiably concludes that "the art of maneuver of forces and means in combat and operation is the most effective reserve of command, the use of which requires special skill. It takes on exceptionally important significance under modern conditions, inasmuch as a future war, if it is started by the imperialists in spite of all the efforts of the peoples, will from the very beginning take on a highly mobile nature and will require the maneuver of all forces and means, all branches and services of the armed forces -- on the land, in the air and on the sea. The art of maneuver must be studied by both commanders and staff officers and by all troops right down to the small podrazdeleniye" (page 171).

The shortcomings of the book, which in no way detract from its overall worth, include an absence of even a brief critical analysis of the views of present-day bourgeois military theoreticians on the questions of maneuver and maneuverability.

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The work would also gain if it gave more specific material relating not only to maneuver and the maneuver operations of the ground forces, but also of other branches of the armed forces.

It is necessary to take the recommendations and conclusions of the author creatively. The author himself even requests this in the introduction to the Czech edition, where he writes that the book is only a summary of his point of view on the given problem offered to the reader as the basis for personnel reflection.

We must approve the initiative of the Military Publishing House in translating very interesting military theoretical works written by representatives of the brotherly armies of socialist countries, which includes also the given book.

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I. Yermashov

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The anti-Soviet campaign being conducted in China with such extreme frenzy has reached unprecedented scope. There is no mendacious, slanderous fabrication, or forgery which has not been used by the Chinese propagandists. The Chinese leaders, evidently, are being thrown into a turmoil by the fact that the Communist Party of the Soviet Union and the overwhelming majority of the Marxist-Leninist parties of other nations are rejecting the claims of the Peiping "sages" to the role of indisputable authorities in everything which concerns Marxist-Leninist theory, strategy, and tactics of the international Communist movement. In truth, there are no bases upon which to acknowledge their claims. In conjunction with this it is not a useless effort to analyze the essence of certain "theoretical" views which the Chinese propaganda is striving to impose upon the Marxist-Leninist parties and particularly the questions of military theory and military policy.

The Chinese leaders have their own "views" which are decisive on all problems of contemporary theory and policy. They also have their views on questions of military theory and military science.

Military science, like any other one, is very important. But there exists the bourgeois military science and the proletarian and Marxist-Leninist military science. This circumstance does not require any proof, since there can be no argument over the fact that military science belongs to the category of social sciences, to its most important branches. What can be said about the "military science" which is currently prevalent in China? It cannot be considered as Marxist-proletarian. The essence of the matter is that what is called "Marxist" military science in China is the product of eclectic confusion. It borrows from Marxism to be acknowledgement of the role of the national masses but only as a numerical factor negating, at the same time, the decisive significance of the economic and material factor; it borrows voluntarism from the petty bourgeois thinkers in its cruder form personified in subjective idealism. It is not difficult to discern the typically Chinese components in their "military science" which have been retained from feudal times. Its characteristic trait is that it faces the past, the Chinese past, and does not acknowledge any experience other than the experience of China despite the fact that such experience may have only an historical value and is completely inapplicable to contemporary conditions: it is simply antiquated. It did not become antiquated by itself, but was the result of basic changes in many of the objective conditions including the material base of war and weapons in particular; in conjunction with this there have been changes in the essential derivative factors: military art, organization of the armed forces, etc.

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Chinese "military science" completely rejects all of this. Factors existing for a long time, as indicated, if one keeps to the metaphysical form of thinking. We read the following "revelations" in an article concerning questions of strategy and tactics published in "Jen-min Jih-pao", 31 July 1963: "Victories or defeats in wars are not determined by the factor of comparing strength and weaknesses, but are determined by comparing the general sum total of the basic factors inherent in the warring sides: they are not determined by comparing the military and economic potential at any one given time, but are determined by the character of the war for each side and a comparison of the manpower strengths and moral factors emanating from this."

"Strength" and "weakness" in war should be understood as material factors and not spiritual. With all other conditions being equal, victory will rest with the stronger side and defeat will be suffered by the weaker. Foggy reference to mysterious "general, sum total of basic factors" does not save the author. If some thought is to be found in these words, then it is revealed in the last phrase of the cited quotation. It is clearly stated there that victory or defeat is determined by the character of the war for both sides, by manpower and moral factors and not by a comparison of the military and economic potential.

As we see, in the actual determination of the requisites for victory primary emphasis is given to moral and political conditions (character of the war, the moral factor) and the relation of the real material forces and means is minimized. Of course, no one should be confused by the author's slip of the tongue concerning "at any given time". Actually, what is the meaning of his words: "victory or defeat is not determined by comparing the military and economic potential at any given time?" The strengths of the sides, at any given time (even if the process of conflict will go through many "given times"), will always be cognizable only by means of comparison and this comparison is applicable for each side. The author's thought leads to the point that inasmuch as the correlation of forces changes during conflict one should go to war even if "at any one given time", that is, at the given time to speak plainly, the enemy is stronger because during the conflict the correlation of forces may change in favor of the weaker.

How will this miracle take place? Under what conditions? The author's response is very simple: under conditions of a prolonged war. He even writes this: "One must lean in everything on the factor of duration and base himself primarily on his own strength. Even though this is an extremely difficult and tortuous route, requiring certain costs and sacrifices, it is the only dependable route capable of bringing about a victory.... This is a prolonged and difficult process during which the weaker can defeat the stronger."

It is absurd to assume that a war of exhaustion favors the weak and hurts the strong. In this kind of war the weaker is exhausted more rapidly than the strong. All of this is true if we stand on a scientific and materialistic point of view. But such an understanding is alien to the article's author. He believes that the war of the weak against the

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[illegible] is not decided by objective conditions or by the material factor, but by the subjective conditions: will-power, stamina, the capability to follow "an extremely difficult route", and the readiness to bear sacrifices. Undoubtedly, these conditions are extremely important for victory. But, as Lenin emphasized, they have their effect only in the final accounting. He always placed the material factors and weapons in first place. The Peiping author places the factor of time in first place. There is no answer, time is an important factor in war. Nevertheless, time is only a form of movement of matter and it cannot replace any material factors. The example which is given in the cited article is the victory of China in its lengthy and prolonged war with Japan is not convincing. If Japan had not been tied down on many fronts in the Pacific Ocean, if the anti-Hiterlite coalition had not transferred the war to Japanese territory, and if the Soviet Army had not completely routed the Japanese army in Northeastern and Northern China, the power of Japanese imperialism would not have been broken and the outcome of the war could have been different. China alone did not possess the forces sufficient for gaining victory and chasing the enemy from their own land, even though the Chinese people conducted a heroic struggle against the Japanese aggressors and its exploits will become part of the history of humanity.

One cannot reject the importance of the role of stamina and will-power in war. One should not flippantly engage in serious combat with the hope that during its course the enemy would become weaker and the weaker showing will-power and stamina would be able to defeat the stronger one. It is stupid to rely on maybe, on happenstance. In order that the weaker would be able to conquer the stronger, he must become stronger during the conflict and the stronger one become weaker. This does not depend at all upon the subjective conditions of will-power and stamina but primarily on objective conditions: material and economic.

In substance the Chinese "theoreticians" separate war, a form of extreme violence, from its material base and transform it exclusively into a volitional act. We must recall that F. Engels wrote on this matter in his polemics against Duering. The basic positions of F. Engels, which have been included in the golden fund of Marxist-Leninist science on war and military art, may be reduced to the fact that "violence is not just an act of volition, but requires very real requisites for its realization, in particular certain implements of which the more perfected will hold over the least perfected; further that these implements must be produced and that as a consequence the producers of the more perfected implements of violence, vulgo (simply speaking -- Ed.) weapons, defeats the producer of the less perfected implements; in one word, victory by violence is based on the production of weapons, and in its time the production of weapons is based on production in general, consequently... on the 'economic force', on 'administrative condition', and on the material means available to the perpetrator of violence."

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possible emergence of imitators in Peiping! Engels' argumentation also foils the current successors of the Berlin professor-metaphysicist who tried to perform "an overturn in science" and who suffered complete failure.

Engels wrote further: "Nothing is so dependent upon the economic conditions as the army and navy. Armaments, composition, organization, tactics, and strategy depend first of all upon the degree of production attained at the given time and on the means of communication. It was not the 'free creative mind' of the brilliantmilitary leaders which were active here in a revolutionary manner but the invention of the best weapons and the changes in the soldiers' materiel" (K. Marx and F. Engels, Sochineniye (Works), Vol 20, pp 170, 171).

What is there in common between the Peiping philosophizing and the mighty thoughts of Engels? Nothing! Ignoring the material and economic factors of war, the Peiping home-grown "Marxists" inevitably slide to extreme idealism in such a super-important question as the conduct of war by the "weak against the strong". Remaining on the ground of "Chinese Marxism", the Peiping "theoretician" metaphysically had to solve the question of the role of such a factor of strength as the population strength of the warring nations. As we have seen, he relates population strength ("human manpower") to the decisive factors which, on the same level with political and moral factors, determine victory or defeat. Moreover, human manpower is the only material factor which he takes into account evidently because without people it is impossible to carry on a war.

Undoubtedly, population manpower is an important factor in determining strength. We emphasize, important but not decisive. History gives us evidence of how large countries populated by hundreds of millions of people were enslaved by countries having much smaller territory and population. Examples may be the enslavement of India by England, England's violation of China, just like the defeat which little Japan delivered to China in 1894-1895. And what about the enslavement of the countries of Africa and South America by the imperialist powers of Europe?

Wherein was the weakness of these countries which found themselves under the heel of imperialism? It was in their economic retardation which gave birth to military weakness. Let us recall the words of Lenin: "...the entire East, with its hundreds of millions of working exploited people, forced to the last degree of human endurance, has been placed into a position where its physical and material efforts are not advancing decisively in any comparison with the physical, material, and military forces of any of the much smaller Western European states" (Works, Vol 33, p 457).

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Such was Lenin's evaluation of the real significance of numbers taken by themselves in determining the role of population in a conflict between the enslaved peoples and the enslaving powers. Lenin considered that the decisive prerequisite for victory in this conflict was the militant collaboration of the working countries of the East and the lands of the West particularly the militant collaboration of the workers of the East with the Soviet country. In no way was Lenin an advocate of the slogan "leaning on one's own strength", as this slogan results in disunity of the struggling peoples, to their isolation one from another, and to a weakening of the anti-imperialist front. To the contrary, Lenin left a testament to the peoples of the East, to all oppressed peoples to unite their forces, to give assistance to each other, and to firmly maintain the principles of mutual assistance so that they could conduct a united struggle against imperialism. Addressing the peoples of the East, he wrote: "Only when the Indian, Chinese, Korean, Japanese, Persian, and Turkish workers and peasants will extend their hands to each other and will move together in the common cause of liberation, only then will a decisive victory over the exploiters be assured." (Works, Vol 31, p 116).

The slogan "leaning on one's own strength" is an anti-Lenin and anti-Marxist nationalistic slogan dictated by these very same idealistic attitudes of the Chinese leaders. It is advanced for a particular political and tactical goal: to separate the peoples of the oppressed countries from the camp of socialism and to sow the seeds of nationalism and chauvinism among them so that political gains could be earned. Such slogans of the Chinese dissenters are advantageous only to imperialism.

That which is being propagandized under the guise of "Marxist-Leninist military science" in the pages of the Chinese press, especially in the pages of the "Jen-min Jih-pao", the newspaper of the Central Committee CCP, and the theoretical organ "Hung-ch'i" in the name of the CCP leadership, represents nothing more than pure adventurism in the questions of conducting armed conflict during our era.

As for the main question -- on the relation of objective and subjective factors in a complex and multiphase process of conducting combat -- the Chinese leadership has slid to the reactionary positions of idealism, champion the primacy of subjective over the objective, the ideal (will-power) over the material (economics), and trumpeting the role of numbers while degrading material might, economy, and equipment.

It is logical that these idealistic and metaphysical views were asserted in their environment and in the evaluation of the character and peculiarities of modern wars as well. No one should be confused by the fact that in their anti-Soviet propaganda, in their deformation of the Marxist-Leninist party, the Peiping leaders take recourse in Marxist terminology for purposes of demagogy and camouflage. In actuality, the Chinese leaders, deserting Marxism, are deliberating yelling loudly of their "faithfulness" to Marxism and the teachings of class struggle applicable to war.

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Let us listen to the Chinese military "theoreticians". The magazine "Hung-ch'e", No 16 (August 1963) published an article by Luchih-ch'ao under the promising title of "The questions of war cannot be examined independently from Marxist-Leninist views on class struggle". This article is a sample of the metaphysical approach to the complex problems engendered by the modern stage in the development of the military art and the unprecedented growth in the slaughtering and destructive power of modern weapons.

The scribblings of this Chinese author have no relation at all to the Marxist-Leninist view on class struggle nor to the criteria for a correct evaluation of the character of a given war. His goal is completely different: to suggest to the reader that the fighters against imperialism must always and everywhere give preference to war as a means of policy.

According to Lenin's writings, in order to establish the character of a given war it is necessary to determine "the reason the war is being conducted, by which classes, for what political goals" (Works, Vol 23, p 21). The Marxist-Leninists consider and still consider only that war to be righteous which is being conducted by the oppressed against the oppressors: by the working class in union with the peasants against the capitalists and landholders, by the oppressed peoples against the colonizers. Wars of this kind, civil and liberation, have as their specific: "this, as a rule, is a war within one country. In conjunction with it, the question on the use of nuclear weapons does not arise. Up to now it has still not been used in such wars. This is understandable as frequently there is no clear definition of the front line separating the opponents. Thus it was in Vietnam, in Cuba, in Algeria, and in other countries". (Declaration of the Soviet government. Pravda, 22 September 1963).

It was a righteous war which the governments of the anti-Hitler coalition conducted against the bloc of fascist aggressors headed by Hitlerite Germany. It stands to reason, that it would be a righteous war if the Soviet Union and the entire socialist concord would have to defend themselves against an attack by imperialism. Capitalism would be destroyed in such a war. A war between the governments of the socialist system and the bloc of imperialist aggressors would be a world war and there would be an inescapable and wide use of nuclear weapons. In this lies its most important feature.

How does the Chinese metaphysicist-demagogue evaluate this irrefutable position? He affirms: so much the better, why wait, "bold" action is needed, there is no need to stop because of sacrifices regardless of their numbers. This position was unequivocally advanced by no other than Mao Tse-tung himself at a conference of Communist and workers parties representatives in Moscow in 1957. All subsequent developments of "ideas" on this question affirmed that it was not an accidental slip of the tongue but a well thought out concept.

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Mao Tse-tung announced without beating around the bush that in his estimation, half the population of our planet or maybe more than half would perish in the event of a world nuclear war. What does half mean? This means that 1350 million to 1500 million people! What conclusion did the CCP leader draw from his calculations? Did he express indigation over the fact that the imperialists are preparing humanity for a bloody slaughter of unheard of proportions? No! Conversely, he made it clearly understood that he considers such a "development" fully acceptable for socialism. He expounded his point of view with a lack of concern, intolerable in a Communist and especially a party leader, for the fate of a billion people primarily workers. In his speech he said: "...If half of humanity will be destroyed, half will still remain, but at least imperialism will be completely destroyed and only socialism will be left in the world, while in half a century or even in a whole century the population will again increase even more than by half".

Mao Tse-tung in actuality spoke out for a world nuclear war, relying on the fact that it has its "positive" side: with "one blow" the hydrogen bomb will solve the basic contradiction of our era -- the contradiction between the world system of socialism and the system of capitalism. This is the idea which the Chinese leaders and the Chinese press are actually preaching at the present time, and in so doing they are flagrantly contradicting their own evaluation for they contend, despite elementary logic, that the power of nuclear weapons, so they say, is exaggerated. Thus, on the one side thermonuclear weapons carry the fate of not less than half the population of the earth but on the other side it is a "paper tiger"! It is no use to look for logic in the Chinese "theoreticians" because they have none.

As if demagogy would not be enough. The same Chinese author declares in the "Hung-ch'e": "The opportunists fall back on the propaganda of fear, fear of war, of the destructiveness of war, of the calamities and horrors of war". My but this author is courageous! Even all of this means nothing to him...."

We see that they needed the argument of "class approach" only to be able to drag through their sermon of war -- a world war with the use of nuclear weapons.

Ridiculous are the pretentions of the Peiping dogmatists to the role of zealots of a class approach to the problems of war. The class problem, of course, exists today even in relation to a world war. What does it consist of? Is it something that would push towards this kind of war, provoke it, or for bringing it about allegedly in the name of "expediting" the fate of imperialism? Certainly not in this. Imperialism is doomed to fall, socialism will be triumphant throughout the world. This is an objective inevitability. It is the growth of the economic might of the world socialist system, the expansion of the revolutionary and national-liberation movement, that more than anything else is hastening the fall of imperialism and is undermining its foundations. The Marxist understands that as the growth tempo of the socialist system becomes more rapid and inspired, so the hour of the final collapse of imperialism draws near.

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It is to the path of economic competition and not to the path of war that the solution of the main contradiction of the modern era, the contradiction between socialism and imperialism, will be decided.

This is what the correct class approach consists of at the present time. The building of Communism must be developed to the highest tempos. A durable peace is needed for this.

For the successful building, a well laid on rhythm of labor has a decisive significant. War, especially nuclear, will create extreme difficulties, it would seriously hinder the building of Communism in the USSR and socialism in the other brotherly nations. This is why the positions set forth by the Declarations of the Soviet government, published 22 September 1963, are of such extreme importance: "Peace is the first condition for strengthening and expanding the position of socialism in the world arena.... Peace is the faithful ally of socialism, of the international working movement, of the peoples struggling for national liberation...." Peace, and not the atomic and hydrogen bombs!

Evidently, the interests of socialism are of little value to the Chinese leaders, they are not perturbed by the losses and devastation which, like the sacrifices, would also be borne by the socialist countries in a nuclear world war.

Such a war would be a true catastrophe for the people. It would not move humanity forward, but to the contrary, it would throw it backwards. It is stated in the Declarations of the Soviet government that: "Politics, must be based not on utopia, but on the fact that a thermonuclear war will have catastrophic consequences for all peoples, for the entire world. All countries, even those that will survive through the war, will be thrown back in their development by tens of years, and maybe even by centuries. The matter of birth-rate in a world which has undergone a thermonuclear war will not be as the Chinese leaders wish to picture it...."

The Marxist-Leninists understand the true class approach to the question of a new world war under modern conditions: it is the prevention of its initiation. As opposed to the Chinese pseudo-Marxist-fatalists who believe that war is inevitable, they take the point of view that in our era there is no fatal inevitability of war and they see as their task to defend vigorously the general peace and future of all humanity, mobilizing the masses for the struggle against the criminal concepts of those who would instigate a new war. Communists are the most decisive opponents of a world war, just as they are always opposed to wars between governments. Herein is the basic difference between the restrained activity of the class position of the CPSU and other Communist and working parties and the adventurism of the Peiping clique which uses empty phrases. It is quite clear that if the imperialists unleash a thermonuclear war they will have to conduct it against all of humanity and tens and hundreds of millions of workers, our brothers by class, and not only the capitalists of whom there are not too many now, would perish in the flames of the nuclear explosions.

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"Chinese Marxism" does not count on the utmost expansion of the class struggle by the workers applicable to the concrete conditions of place and time, on organizing the working masses, nor on winning the majority of the peoples over to the side of the great matter of the revolutionary reformation of society, but on war, on a world thermonuclear war. No matter how much the Peiping leaders try to disallow this fact it is irrefutable and lays upon them with indelible disgrace. He who in our time actually preaches thermonuclear war, advancing it as the "shortest route" to the victory of socialism, becomes the bearer of the vile doctrine of genocide -- the extermination of humanity. And no loud phrases on "the class character" can conceal this.

For purposes of camouflage, the Chinese leaders defend the point of view that allegedly the only form of proletarian revolution was and remains revolutionary war, uprising. They proclaim that a rejection of uprisings is equivalent to rejection of revolution. In the 14 June 1963 letter of the Central Committee CCP, in which the true views of the Chinese leaders are masked by a thick cloud cover of "revolutionary" phrases, we read: "Some say that revolution is fully possible without wars. What kind of wars are being discussed? Is it national-liberation and civil revolutionary wars or is it world wars?

"If discussion is on national-liberation and civil revolutionary wars, then such contentions, by their very nature, are directed against revolutionary wars, that is, against revolution."

Here it is written in black and white that the proletarian revolution is impossible if there is no revolutionary war or no armed uprising. But the Marxist-Leninists have always felt that the proletarian revolution, as a social overturn, as an understanding is broader than a revolutionary war. Revolutionary war is a means, a form of realizing the proletarian revolution, moreover, it is not the only means and not the only form.

The proletarian revolution includes: revolutionary overturn, the overthrow of the domination of capital; the suppression of resistance by the deposed exploiters; and the revolutionary reformation of society and the building of socialism.

Lenin teaches us that: "Marxism differs from all primitive forms of socialism in that it does not link its movement with any one specific form of struggle" (Works, Vol 11, p 186).

The Chinese good-for-nothing Marxists referred to Lenin and adduced to his words that the peaceful development of a revolution is rarely encountered in history. Yes, Lenin wrote about this on the eve of the Great October, in September 1917. This is his well known position: "The peaceful expansion of any revolution is, in general, a very rare thing".

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Lenin based this on the experience of that day. Nevertheless during the pre-October period he spoke out for the peaceful transition of power to the Soviets which "would have made a civil war in Russia impossible" (Works, Vol 26, pp 18, 17). If one adheres to the "views" of the Peiping strategists of "revolutionary" phrases, then Lenin should be indicted for the fact that he allegedly spoke out against revolution!

For a more graphic presentation of the anti-Marxist theory currently circulating in Peiping, we will give one more important example from the history of the proletarian movement. We all know the comments of F. Engels that for revolutions of the 19th Century, as experience has proven, "a real victory of uprising over troops in straight combat, that is, the kind of victory which occurs in combat between two armies, is an extreme rarity." (K. Marx and F. Engels, Works, Vol 22, p 540). Was Engels correct or, according to the Peiping instructions, should he be relegated outside of the limits of Marxism for "revisionism"? Of course Engels was correct. The experiences of the 19th Century revolutions prompted him to this conclusion, nevertheless, he advised the workers that under no circumstance should they reject their right for revolution (Ibid. p 545). And as we know, under other conditions the workers and their allies in many countries utilized this right to the very end, fully and completely.

That which was a rare phenomenon in the past era has become the rule and the norm in the changing concrete conditions namely, in the era of transition from capitalism to socialism. The transfer of power to the working class and the overthrow of capitalism has followed a peaceful route in many countries, belonging to the camp of socialism, and was conducted without a civil war regardless of what the Chinese leaders affirm. In other countries, the victory of the working class in union with the peasants required lengthy armed conflict. Consequently, it is nonsensical to insist on the fact that allegedly only one route to a victory by the proletariat exists, a proletarian revolution or civil war.

The CCP leaders have repudiated the instructions of Lenin: "In no case does Marxism limit the possible forms of struggle, existing only at the given time, acknowledging the inevitability of new forms of struggle unfamiliar to the user at the given period, along with changes in the given social situation" (Works, Vol 11, page 186). They pretend as if they are unaware of another extremely important position of Lenin on the fact that rejection of uprising in a given specific situation is in no way equivalent to a rejection of the revolution. This is Lenin's position: "...history has shown that oppression can not always be answered with uprisings; but a rejection of uprisings does not mean that revolutions are rejected" (Works, Vol 27, p 27). These precise words of Lenin, full of deep meaning, completely kill all "arguments" of the advocates of identifying one form of combat -- uprising -- with the proletarian revolution.

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Our Central Committee is completely correct when it points out to the Chinese leaders that world revolution is following many paths today "which must not be placed in contraposition one to another, but must be combined, directed towards one goal -- the overthrow of the domination of imperialism." (Open Letter of the Central Committee CPSU to the party organizations and all Communists of the Soviet Union. State Political Publishing House, 1963, page 44).

As we have already seen, the Chinese leaders are stubbornly defending their depraved point of view that only one route exists for all countries and conditions: war, even if it would carry away millions, tens and hundreds of millions of human lives. They consider that revolution can be accomplished at any time, it is just necessary towant to organize an uprising!

It would be a mistake to see in this something specifically Chinese, nationalistic; it is not difficult in all of this to discern the traits of a specific ideology that of a petty bourgeois revolutionary movement, which, as Lenin taught us Communists, "resembles anarchism or something borrowed from it, which deviates in everything substantive from the conditions and requirements of a sustained proletarian class struggle." (Works, Vol 31, p 15).

It is namely this "petty bourgeois revolutionary movement" which does not acknowledge any flexibility, no compromises in the great struggle of the working class against world imperialism, and which acknowledges (in words, mainly;) only the "direct action" or, to use a term currently popular in China -- "tit for tat".

We must remember that modern China is still a vast peasant country with a relatively small proportion of proletarian elements, with a young, far from hardened, working class which has arisen only during the last quarter of a century; a country in which there still remain and exist vestiges of the backward ideology of minor and petty proprietors of the recent past and even elements of feudal ideology toward life, family, and interpersonal relations. We cannot completely exclude the pressure of these petty bourgeois social layers on the leaders especially if the leaders themselves also suffer from the criminal "extreme revolutionary character" and particularly at the time of difficulties with the internal order. The fact that China is undergoing serious internal difficulties as a result of their adventuristic course toward "accelerated movement" towards socialism by the methods of crude administrativeness is well known to everyone.

The disdainful consideration by the Peiping "supermen" to those millions, tens and hundreds of millions of human sacrifices which they are ready to bring to the altar of their adventuristic, one might say, "total strategy" is typical. This also puts them into the same family with the anarchists. "What are sacrifices for us..." cried one of the anarchistic troubadours in France, Loran Tal'yad (transliteration from Russian).

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"What matters the [illegible] masses of humanity..." he continues. In citing these words of Tal'yad, G. V. Plekhanov remarks: "Here is the true morality of the anarchists; it is the morality of the caesers: "sic volo"!, "sic jubeo"! (As I want, so I command!)". (G. V. Plekhanov. Works, Vol 4, State Publishing House, 1923, p 244).

There is, of course, a substantive quantitative, one might say, between the anarchists whom Plekhanov ridiculed and the anarchistic Peiping worshippers of "direct action". In extreme cases, the former were capable of throwing a pot filled with explosives into the public of some restaurant or theater. Their contemporary co-brethern possessing incomparably greater capabilities and resources are not contemplating the use of a pot with explosives but using nuclear weapons which they are creating "on the basis of their own strength". With the assistance of these weapons they are planning "to nudge" the tempo of historical development so that in this manner they could "do much good" for humanity. The successors of the anarchist doctrines should be reminded of one of the comments by F. Engels: "...The victorious proletariat cannot impress any happiness on any other people without thereby undermining their own victory". (K. Marx, F. Engels, V. I. Lenin. O proletarskom internatsiolizme (On [illegible] Proletarian Internationalism), State Political Publishing House, Moscow, 1957, p 174).

The necessary condition for victory over world imperialism does not lie in provoking a nuclear war, but in the maximum consolidation and expansion of the world system of socialism, a further increase in its power which has a revolutionizing effect on the broad masses of workers in the entire world and helps them in their struggle against imperialism; in the retention of the high combat readiness of the armed forces of the socialist countries so that at any moment even the slightest attempt of an attack by the reactionary world could be repelled.

This revolutionary strategy has a favorable goal that of the saving of humanity. The adventuristic "strategy" and "total strategy" of the Peiping type is fraught with indescribable calamities for all peoples including the Chinese.

A component part of this "strategy" is the propaganda war being conducted by China with unheard of licentiousness against the Soviet Union, the CPSU and other Marxist-Leninist parties. By their hostile tone, by their malicious scope, and dirty insinuations the articles of the Chinese press could readily "adorn" any anti-Soviet, superreactionary, even fascist publications paid for from the secret funds of the world black hundred.

All of this is not the result of polemic vehemence but to the contrary is a cold-blooded realization of a specific plan by the CCP leaders who have slid to the route of extreme chauvinism of the rascist sense. The task of this propaganda is to sow panic in the people and to exhort them to take a new load upon their shoulders, the load of a nuclear arms race into which the leaders of the CCP consider it necessary to drag in long-suffering China.

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Why is the CCP leadership straining so frantically for nuclear weapons? Not one socialist country, except China, considers necessary to provide itself with "personal" nuclear weapons, but believe in all correctness that the might of the Soviet nuclear forces is dependably covering the entire camp of socialism against attack. The CCP leaders do not believe in brotherly friendship with other socialist countries and do not value it, they are orienting themselves only on "their own strength". They feel that a world thermonuclear war is inevitable and, striving to expedite it, they evidently assume that the Chinese people have the greatest chances for survival inasmuch as numerically they surpass any other people of the world. In the event of the destruction of the majority of the peoples of the world, their governments, and their cultures (this is what is called the "destruction of imperialism" in the language of the Peiping political hysterical women), they believe that the era of world domination by yellow-skinned people will begin. The Peiping leaders have already agreed on the division of people by racial signs and by the color of their skin and not by class and social membership. In this way they have come out on the road leading into the swamp of racism with all of its consequences. The Peiping variant of "total strategy" is the fruit of reactionary utopia of the CCP leaders who have broken away from Marxism-Leninism.

As one becomes closer acquainted with the theories of the Peiping leaders and their practical activity in the world arena, it becomes quite clear that they give first place not to the interests of the people struggling for peace, for socialism, and national liberation, but to their own great-power goals. At the same time that they call upon the people to disregard the concrete situation, to disregard the possibilities and consequences of a thermonuclear war, the true goals of the Chinese leaders become further and further from the interests of struggling for the development of the international Communist movement for a victory by socialism in all countries of the world.

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